
A BIOGEOGRAPHICAL COMPARISON BETWEEN YUNNAN, SOUTHWEST CHINA, AND TAIWAN, SOUTHEAST CHINA, WITH IMPLICATIONS FOR THE EVOLUTIONARY HISTORY OF THE EAST ASIAN FLORA¹

*Hua Zhu*²

ABSTRACT

Located in southwestern and southeastern China, respectively, Yunnan and Taiwan are of biogeographical significance for the floristic diversity and evolution of the East Asian flora. A total of 13,253 seed plant species in 2140 genera and 225 families are recognized from Yunnan, while 3411 species in 1234 genera and 190 families are recognized from Taiwan. Although the flora of Yunnan is much more diverse than the flora of Taiwan, it is conspicuously similar in floristic composition and biogeographical elements. Yunnan and Taiwan share many of the same species-rich families in their floras. In both areas, families of tropical distribution contribute 52.4% and 50.5% of the total families in Yunnan and Taiwan, respectively, and the genera of tropical distribution contribute 57.3% of the flora in Yunnan and 60.9% of the flora in Taiwan. Yunnan and Taiwan have floristic similarities of 96.3% at the family level and 84.7% at the generic level. These similarities indicate that Yunnan and Taiwan have close floristic affinities. However, the floras of Yunnan and Taiwan have diverged to some extent. Yunnan has eight East Asian families and two Chinese endemic families, of which only two East Asian families are shared with Taiwan. Of the 12 tropical Asian families in Yunnan, 10 are not seen in Taiwan. Compared to Taiwan, Yunnan has 474 genera of tropical Asian distribution, which contribute 22.1% of its total genera, while Taiwan has 165 genera of tropical Asian distribution, contributing only 13.4% of its total genera. Furthermore, the patterns of geographical elements indicate that genera with transcontinental distributions, such as pantropic, Old World tropic, north temperate, or East Asia and North America disjunctions, are more likely to be shared by Yunnan and Taiwan, while those genera with distributions of tropical Asia, Old World temperate, temperate Asia, Mediterranean and western to central Asia, East Asia, and Chinese endemic are more often represented only in Yunnan. The flora of Yunnan might be derived from a Tertiary subtropical East Asian flora and has been diversified in its biogeographical elements following tectonic events since the Late Tertiary: northwestern Yunnan has evolved a temperate-featured flora with the uplift of the Himalayas, and southern Yunnan has evolved a tropical Asian flora with extrusion of the Indochina block. The flora of Taiwan could mainly derive from the East Asian flora with uplifting to an island after the Late Tertiary, and could have a relatively unsophisticated evolutionary history compared to Yunnan.

Key words: Biogeography, China, East Asian flora, floristics, Taiwan, Yunnan.

In his floristic regionalization of the world, Takhtajan (1978) delineated the Eastern Asiatic floristic region. Later, Wu and Wu (1996) raised this floristic region to kingdom level, the Eastern Asiatic Kingdom, considering its uniqueness with more than 30 endemic families and an exceptionally large number of endemic genera. The Eastern Asiatic Kingdom was further divided into Sino-Himalayan (with 144 endemic genera) and Sino-Japanese (with 104 endemic genera) subkingdoms (Wu & Wu, 1996). The Eastern Asiatic Kingdom was supposed to be one of the major centers for the evolution of higher seed plants, as the floristic

kingdom is especially rich in gymnosperms and primitive angiosperms (Wu & Wu, 1996). It is important for botanists who study the history of the temperate floras of the Northern Hemisphere and the tropical flora of southeastern Asia to deeply understand Eastern Asiatic flora. Yunnan and Taiwan comprise the southwestern and southeastern wings, respectively, of the Eastern Asiatic floristic region (Takhtajan, 1978), although their southernmost parts were in the northern margin of the Paleotropical kingdom, and Taiwan, as a whole, was later moved to the Paleotropical kingdom by Wu and Wu (1996). Yunnan and Taiwan are of

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² Xishuangbanna Tropical Botanical Garden, The Chinese Academy of Sciences, Kunming 650223, Yunnan, People's Republic of China. zhuh@xtbg.ac.cn.

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important biogeographical significance for the East Asian flora; they are at similar latitudes and have similar geography and vegetation. Comparing their floras may lead to a better understanding of the geological history, floristic variation, and evolution of East Asian floras.

The flora of Yunnan was primarily studied by Li and Walker (1986). Further research revealed that southern Yunnan has a tropical flora of Malaysian affinity (Zhu, 1997, 2008a; Zhu & Yan, 2009); central Yunnan is largely characterized by a subtropical East Asian flora (Yan et al., 2009), while northwestern Yunnan has a temperate Himalayan flora (Zhu, 2015). Floristic relationships between Taiwan and mainland China have been discussed previously (Ying & Hsu, 2002), and paleobotanical comparisons between Taiwan and mainland China have also been made (Song & Huang, 2004). These studies have shown that both the present flora and the palynoflora of Taiwan have close affinities to those of mainland China. It has also been observed that some taxa in Taiwan are related to taxa from southwestern China and the Himalayas, e.g., *Taiwania* Hayata, which is disjunctively distributed in northern Myanmar, the Hengduan Mountains of Yunnan, Hubei in central China, and Taiwan (Yu, 1995). Ying and Hsu (2002) recorded 15 genera of seed plants in Taiwan with Chinese-Himalayan distributions. While it has been observed that the gymnosperms of Taiwan have a closer affinity to southwestern China than to southeastern Asia (Ying & Hsu, 2002), the floristic relationships between southwestern China and Taiwan are understudied.

In this article, I compare the floras of Yunnan and Taiwan and their biogeographical affinities, to contribute to our understanding of geological history and the floristic evolution and variation of East Asia.

GEOGRAPHY

Yunnan Province is in southwestern China between 21°09' to 29°15'N and 97°32' to 106°12'E and occupies an area of 394,100 km². It has a mountainous topography with mountain ridges generally running in a north-south direction, decreasing in elevation southward from 6740 m at the highest mountain summit in the northwest to 76.4 m at the lowest valley bottom in the southeast (Red River). The general climatic pattern is: (1) tropical wet climates in the southern lowlands, (2) tropical dry climates in deep valleys below 1000 m, due to the foehn effect, (3) subtropical climates on the central plateau, and (4) temperate to cold temperate climates in the northern high mountains. It has a roughly annual precipitation of less than 1000 mm in the

northern mountains, 1000–1250 mm on the central plateau, and 1250–2250 mm in the south except in the deep dry valleys. Yunnan is a region with tropical areas at the horizontal base because almost all areas of lower elevation are tropical in nature regardless of their latitudinal location (Zhu, 2008b).

Taiwan is in southeastern China, at similar latitudes to Yunnan. It is a large (35,989 km²) continental island and lies between 21°45' to 25°56'N and 119°18' to 124°34'E. It also has a mountainous topography with mountain ridges in the center, running in a north-south direction. Its elevation ranges from sea level to 3997 m on the highest mountain summit in Yushan (Huang, 1993). Taiwan shows a transition from a tropical monsoon climate with an annual temperature of 23°–24°C in the south to a southern subtropical climate with an annual temperature of ca. 21°C in the north. It has an annual precipitation that exceeds 1500 mm across the island. Taiwan is also a region with tropical areas at its horizontal base.

VEGETATION

Yunnan supports a rich biodiversity and various vegetation types, making it a key area in biogeography and a hotspot for biodiversity (Myers, 1998). The vegetation types of Yunnan include tropical rainforest, subtropical evergreen broad-leaved forest, warm-temperate deciduous broad-leaved forest, temperate coniferous and broad-leaved mixed forest, cold temperate coniferous forest, alpine shrubs and meadows, as well as thorny shrubs and savanna in dry-hot valleys (Wu, 1987). The variety in these vegetation types shows a more or less mosaic distribution pattern, which occurs in response to the extremely diverse topography in Yunnan. It is conspicuous that the vegetation distribution of Yunnan corresponds more to elevation than latitude (Zhu, 2008b).

Taiwan has very similar vegetation types to those of Yunnan. It has tropical rainforest and monsoon forest in the lowlands; subtropical evergreen broad-leaved forest, which is the main vegetation type in Taiwan, in the lower montane zone; temperate coniferous–broad-leaved mixed forest and evergreen-deciduous mixed forest in the upper montane zone; and cold temperate *Picea* A. Dietr.–*Abies* Mill. forest at altitudes above 3000 m (Huang, 1993; Song & Xu, 2003).

MATERIALS AND METHODS

In the *Flora of Taiwan* (Huang & Editorial Committee of the Flora of Taiwan, 1994), which incorporated the newest checklist of vascular plants

of Taiwan (Boufford et al., 2003), excluding cultivated, introduced, and invasive species, and rectifying the circumscription of families that followed APG III (Chase & Reveal, 2009; APG III, 2009), and species following the nomenclature and classification as presented in Tropicos® of the Missouri Botanical Garden (<http://www.tropicos.org>), an updated list of native seed plants in Taiwan was completed, with a total of 3411 species in 1234 genera and 190 families. A similar circumscription of families and species was obtained, using the *Flora of Yunnan* (Wu, 1977–2006) and Tropicos®, with a total of 13,253 native seed plant species in 2140 genera and 225 families. Complete lists of families and genera with species numbers for Yunnan and Taiwan are given in Appendix 1. Floristic and geographical attributes of the floras of Yunnan and Taiwan were then analyzed. Patterns of seed plant distribution of these floras were quantified at the generic level based on documentation from Wu (1991) and Wu et al. (2006) and at the family level according to Wu et al. (2003). Comparisons of both floristic composition and geographical elements were made to assess the floristic similarity and variation as well as biogeographical affinities between these two regions.

RESULTS

FLORISTIC COMPOSITION OF THE FLORAS IN YUNNAN AND TAIWAN

A total of 13,253 native seed plant species in 2140 genera and 225 families were recognized from Yunnan. The families with high species richness include Poaceae (874 species), Asteraceae (787), Orchidaceae (774), Fabaceae (637), Rosaceae (460), Lamiaceae (446), Rubiaceae (365), Ericaceae (360), Ranunculaceae (310), Cyperaceae (273), Umbelliferae (250), Euphorbiaceae (226), Primulaceae (221), Lauraceae (205), and Gentianaceae (202). A total of 3411 species in 1234 genera and 190 families were recognized from Taiwan. Similar to the flora of Yunnan, the families with high species richness in Taiwan include Orchidaceae (334 species), Poaceae (317), Asteraceae (204), Fabaceae (195), Cyperaceae (159), Lamiaceae (103), Rubiaceae (97), Rosaceae (90), Euphorbiaceae (78), Urticaceae (61), and Lauraceae (57). The total number of native seed plant species in Yunnan is more than four times the total species in Taiwan.

The top 50 families ranking in species richness from both Yunnan and Taiwan are compared in Table 1. The dominant 50 families in Yunnan include a total of 10,447 species, contributing to 78.8% of its total flora (13,253 species), while the

dominant 50 families in Taiwan have a total of 2696 species, contributing to 79.0% of the total flora (3411 species). The floras of Yunnan and Taiwan are conspicuously similar in their species-rich families. Thirty-nine of the dominant 50 families in Yunnan are shared by Taiwan. The other 11 dominant families in Yunnan are Balsaminaceae, Begoniaceae, Berberidaceae, Campanulaceae, Fumariaceae, Gesneriaceae, Orobanchaceae, Primulaceae, Salicaceae, Sapindaceae, and Saxifragaceae; most of them are species-rich families in the Himalayas, while Gesneriaceae has high species diversity in southwestern China, especially in limestone habitats.

GEOGRAPHICAL ELEMENTS

Geographical elements of the floras of Yunnan and Taiwan at the family level are enumerated in Table 2. Families with tropical distribution dominate both, contributing to 52.4% and 50.5% of the total families in Yunnan and Taiwan, respectively, with those of pantropical distribution (e.g., Acanthaceae, Anacardiaceae, Annonaceae, Apocynaceae, Araceae, Arecaceae, Clusiaceae, Combretaceae, Icacinaceae, Myristicaceae, and Sapotaceae), making up 34.2% in Yunnan and 37.9% in Taiwan. Excluding cosmopolitan families with little geographical significance, those of north temperate distribution (e.g., Adoxaceae, Betulaceae, Caprifoliaceae, Cornaceae, Fagaceae, Fumariaceae, Hamamelidaceae, Orobanchaceae, and Salicaceae) rank second, contributing to 12.4% and 14.2% of their total floras, respectively. The flora of Yunnan includes 12 families of tropical Asian distribution (e.g., Crypteroniaceae, Escalloniaceae, Ixonanthaceae, Pentaphragmataceae, Pentaphylacaceae, Rafflesiaceae, Sabiaceae, and Sladeniaceae), eight families of East Asian distribution (e.g., Cercidiphyllaceae, Circaeasteraceae, Dipentodontaceae, Eupteleaceae, Stachyuraceae, and Tetracentraceae), and two families endemic to China (Eucommiaceae and Ginkgoaceae). The flora of Taiwan, in contrast, includes only two tropical Asian families (Akanthaceae, Sabiaceae), three East Asian families (Cephalotaxaceae, Stachyuraceae, and Trochodendraceae), and no Chinese endemic families.

Geographical elements at the generic level are enumerated in Table 3. The genera of tropical distribution contribute to 57.3% of the flora of Yunnan and 60.9% of the flora of Taiwan. The genera of tropical Asian distribution make up the highest proportion of the total genera of Yunnan (22.1%), while the genera of pantropical distribution constitute the highest proportion of the total genera of

Table 1. Dominant 50 families with high species richness among the floras of Yunnan (making up a total of 10,447 species, 78.8% of the total flora) and Taiwan (making up a total of 2696 species, 79.0% of the total flora).

Flora of Yunnan			Flora of Taiwan		
Family	No. of species	Species (%)	Family	No. of species	Species (%)
Poaceae	874	6.6	Orchidaceae	334	9.8
Asteraceae	787	5.9	Poaceae	317	9.3
Orchidaceae	774	5.8	Asteraceae	204	6.0
Fabaceae	637	4.8	Fabaceae	195	5.7
Rosaceae	460	3.5	Cyperaceae	159	4.7
Lamiaceae	446	3.4	Lamiaceae	103	3.0
Rubiaceae	365	2.8	Rubiaceae	97	2.8
Ericaceae	360	2.7	Rosaceae	91	2.7
Ranunculaceae	310	2.3	Euphorbiaceae	78	2.3
Cyperaceae	273	2.1	Urticaceae	61	1.8
Umbelliferae	250	1.9	Lauraceae	57	1.7
Euphorbiaceae	226	1.7	Fagaceae	48	1.4
Primulaceae	221	1.7	Convolvulaceae	44	1.3
Lauraceae	205	1.5	Polygonaceae	42	1.2
Gentianaceae	202	1.5	Ranunculaceae	38	1.1
Gesneriaceae	194	1.5	Ericaceae	36	1.1
Apocynaceae	192	1.4	Araceae	33	1.0
Urticaceae	190	1.4	Umbelliferae	33	1.0
Liliaceae	181	1.4	Theaceae	32	0.9
Acanthaceae	175	1.3	Acanthaceae	31	0.9
Orobanchaceae	161	1.2	Apocynaceae	31	0.9
Saxifragaceae	145	1.1	Moraceae	31	0.9
Fagaceae	142	1.1	Rutaceae	31	0.9
Caryophyllaceae	139	1.0	Liliaceae	30	0.9
Zingiberaceae	139	1.0	Plantaginaceae	29	0.9
Celastraceae	126	1.0	Cruciferae	28	0.8
Theaceae	120	0.9	Symplocaceae	26	0.8
Araliaceae	117	0.9	Caryophyllaceae	25	0.7
Berberidaceae	116	0.9	Solanaceae	25	0.7
Cruciferae	115	0.9	Boraginaceae	23	0.7
Balsaminaceae	112	0.8	Gentianaceae	23	0.7
Salicaceae	111	0.8	Malvaceae	23	0.7
Polygonaceae	108	0.8	Cucurbitaceae	22	0.6
Moraceae	103	0.8	Aquifoliaceae	21	0.6
Rutaceae	102	0.8	Smilacaceae	21	0.6
Araceae	99	0.7	Celastraceae	20	0.6
Cucurbitaceae	99	0.7	Myrsinaceae	20	0.6
Vitaceae	96	0.7	Commelinaceae	19	0.6
Rhamnaceae	93	0.7	Crassulaceae	19	0.6
Begoniaceae	92	0.7	Linderniaceae	19	0.6
Oleaceae	90	0.7	Oleaceae	19	0.6
Campanulaceae	85	0.6	Vitaceae	19	0.6
Caprifoliaceae	84	0.6	Zingiberaceae	19	0.6
Sapindaceae	81	0.6	Caprifoliaceae	18	0.5
Aquifoliaceae	79	0.6	Hydrocharitaceae	18	0.5
Fumariaceae	79	0.6	Amaranthaceae	17	0.5
Convolvulaceae	74	0.6	Loranthaceae	17	0.5
Crassulaceae	74	0.6	Melastomataceae	17	0.5
Melastomataceae	73	0.6	Rhamnaceae	17	0.5
Boraginaceae	71	0.5	Araliaceae	16	0.5

Table 2. Biogeographical elements of seed plants at the family level in the floras of Yunnan (Southwest China) and Taiwan (Southeast China).

Biogeographical elements at family level	Yunnan		Taiwan	
	No. of families	%*	No. of families	%*
Cosmopolitan	58	25.8	58	30.5
Pantropic	77	34.2	72	37.9
Tropical Asia and tropical America disjunct	16	7.1	12	6.3
Old World tropic	5	2.2	4	2.1
Tropical Asia to tropical Australia	6	2.7	5	2.6
Tropical Asia to tropical Africa	2	0.9	1	0.5
Tropical Asia	12	5.3	2	1.1
North temperate	28	12.4	27	14.2
East Asia and North America disjunct	10	4.4	4	2.1
Old World temperate	1	0.4	2	1.1
Temperate Asia	0	0.0	0	0.0
Mediterranean, Western Asia to Central Asia	0	0.0	0	0.0
Central Asia	0	0.0	0	0.0
East Asia	8	3.6	3	1.6
Endemic to China	2	0.9	0	0.0
Total no. of families	225	100.0	190	100.0

* Percentages are calculated by the number of families in each geographical element divided by the total number of families in all geographical elements, then multiplied by 100%.

Taiwan (21.6%). In the flora of Yunnan, the genera of pantropical distribution constitute 14.4% of the total genera, followed by north temperate (10.9%) and East Asia (9.9%). In the flora of Taiwan, the genera of tropical Asian distribution contribute 13.4% of the total genera, followed by north temperate (12.3%). The genera endemic to China contribute 5.4% (115 genera) of the total flora of Yunnan but only 1.5% (18 genera) of the total flora of Taiwan.

FLORISTIC SIMILARITY BETWEEN THE FLORAS OF YUNNAN AND TAIWAN

Similarity coefficients between the floras of Yunnan and Taiwan at the family and generic levels are given in Table 4. They are 96.3% at the family level and 84.7% at the generic level. Among 190 families of seed plants in Taiwan, only seven families are not known from Yunnan: Flagellariaceae, Good-

Table 3. Biogeographical elements of seed plant taxa at the generic level in the floras of Yunnan (Southwest China) and Taiwan (Southeast China).

Biogeographical elements at generic level	Yunnan		Taiwan	
	No. of genera	%*	No. of genera	%*
Cosmopolitan	90	4.2	88	7.1
Pantropic	309	14.4	267	21.6
Tropical Asia and tropical America disjunct	45	2.1	34	2.8
Old World tropic	146	6.8	117	9.5
Tropical Asia to tropical Australia	146	6.8	115	9.3
Tropical Asia to tropical Africa	109	5.1	53	4.3
Tropical Asia	474	22.1	165	13.4
North temperate	234	10.9	152	12.3
East Asia and North America disjunct	89	4.2	62	5.0
Old World temperate	111	5.2	50	4.1
Temperate Asia	21	1.0	6	0.5
Mediterranean, Western Asia to Central Asia	23	1.1	7	0.6
Central Asia	17	0.8	0	0.0
East Asia	211	9.9	100	8.1
Endemic to China	115	5.4	18	1.5
Total no. of genera	2140	100.0	1234	100.0

* Percentage was calculated by the number of genera in each geographical element divided by the number of genera of all geographical elements, then multiplied by 100%.

Table 4. Similarity coefficients at the family and genus levels between the floras of Yunnan (225 families, 2140 genera) and Taiwan (190 families, 1234 genera).

Floristic similarities	Shared no./Similarity coefficients
At family level	183/96.3*
At generic level	1045/84.7*

* The similarity coefficient between A and B is calculated by the number of taxa shared by both A and B divided by the lowest number of taxa of A or B, then multiplied by 100%.

eniaceae, Phylodraceae, Ruppiaceae, Triuridaceae, Trochodendraceae, and Zosteraceae. Except for Trochodendraceae, which is distributed in Taiwan, the Ryukyu Islands, and Japan, the other six families are mostly seashore, wetland, or water plants and occur in southeast mainland China.

Among 225 families of seed plants in Yunnan, 43 families are not known from Taiwan (Table 5). They include 10 tropical Asian families, seven pantropical families, five North temperate families, six East Asian families, and two Chinese endemic families.

There are 1045 genera of native seed plants shared by Yunnan and Taiwan. However, 1095 genera in Yunnan are not known from Taiwan, while 190 genera in Taiwan are not known from Yunnan (Table 6). Of these shared genera, the pantropical elements contribute 23.2%, north temperate 13.4%, and tropical Asia 12.3%. Of those genera only in Yunnan, 343 genera are of tropical Asian distribution (31.3%), 138 genera are of East Asian distribution (12.6%), 106 are endemic to China (9.7%), and 94 genera are of north temperate distribution (8.6%). Of the genera only in Taiwan, those of tropical Asian distribution contribute 19.0%, those of tropical Asian to tropical Australian distribution contribute 14.8%, those of pantropical distribution contribute 13.2%, and those of East Asian distribution contribute 14.3%.

DISCUSSION

Yunnan and Taiwan are at similar latitudes and have a similar geography, although they are located at opposite ends of the Eastern Asiatic floristic region. They are conspicuously similar in floristic composition and geographical elements. They have higher similarities at the family and generic levels than usually expected. Although the flora of Yunnan is much more diverse in species than is the flora of Taiwan, the following similarities between them are revealed. (1) The top 50 families ranking in species richness in Yunnan and Taiwan contribute to 78.8% and 79.0% of their total floras, respectively. Thirty-nine of the top 50 families in both Yunnan and Taiwan are shared between the two provinces. (2) The

families of tropical distribution make up 52.4% and 50.5% of the total families in Yunnan and Taiwan, respectively, of which those of pantropical distribution contribute most among all geographical elements, making up 34.2% of the total families in Yunnan and 37.9% of the total families in Taiwan. The genera of tropical distribution contribute 57.3% of the flora of Yunnan and 60.9% of the flora of Taiwan. (3) The flora of Taiwan shares 96.3% of its families and 84.7% of its genera with the flora of Yunnan. The high floristic similarities between Yunnan and Taiwan indicate their close floristic affinities, despite the distance between the provinces.

The close floristic affinities cannot be explained only by the similar latitudes and geography of the provinces, but also by the geological history of East Asia and the Himalayas. It has been suggested that Taiwan was uplifted to an island after the Late Tertiary (Teng, 1990; Huang et al., 2001; Song & Huang, 2004), synchronous with the uplift of the Himalayas (Shi et al., 1998, 1999). During the formation of Taiwan, there were intermittent land connections to mainland China until the Late Holocene. The geological history of Taiwan might explain the close floristic affinity to Yunnan. Among the genera of East Asia distribution in Taiwan, Ying and Hsu (2002) mentioned that 15 genera were typical Sino-Himalayan distribution. Evidently, the floristic connection between Yunnan and Taiwan can be attributed to the success of the uplift of the Himalayas, which controlled their formations during the same geological time.

Table 7 shows the floristic similarities at the family and genus levels between the floras of Yunnan, Guangxi (Qin & Liu, 2010), Guangdong (Ye & Xing, 2005), Fujian, and Taiwan Provinces in southern China, which indicate that the floristic similarities between these provinces are high (more than 92.6% at the family level and 73.3% at the genus level), and their floras are in a continuous transition.

The high floristic similarity between these compared provinces makes it reasonable that main parts of Yunnan and Taiwan were included in the East Asian floristic region by Takhtajan (1978). There are eight families of East Asian distribution, Cephalotaxaceae, Cercidiphyllaceae, Circaeasteraceae, Dipentodontaceae, Eupteleaceae, Stachyuraceae, Tetracentraceae, and Toricelliaceae, and 211 genera of East Asian distribution in Yunnan. There are three families of East Asian distribution, i.e., Cephalotaxaceae, Stachyuraceae, and Trochodendraceae, and 100 genera of East Asian distribution in Taiwan. However, of the eight families of East Asian distribution in Yunnan, only two families are

Table 5. Seed plant families found in Yunnan but not in Taiwan (43 families). The number of species and genera are included as well as their biogeographical distribution types.

Family	Number of genera	Number of species	Distribution types
Borthwickiaceae	1	1	tropical Asia
Burseraceae	3	13	pan-tropic
Butomaceae	2	2	north temperate
Calycanthaceae	1	2	East Asia and North America disjunct
Carlemanniaceae	2	2	tropical Asia
Cercidiphyllaceae	1	1	Sino-Japan
Circaeasteraceae	1	1	Sino-Himalaya
Cletheraceae	1	5	tropical Asia and tropical America disjunct
Crypteroniaceae	1	1	tropical Asia
Dilleniaceae	2	4	pan-tropic
Dipentodontaceae	1	1	Sino-Himalaya
Dipterocarpaceae	5	7	pan-tropic
Ephedraceae	1	1	North temperate
Erythroxylaceae	1	2	pan-tropic
Escalloniaceae	1	1	tropical Asia
Eucommiaceae	1	1	endemic to China
Eupteleaceae	1	1	East Asia
Ginkgoaceae	1	1	endemic to China
Gnetaceae	1	4	pan-tropic
Hippocastanaceae	1	6	tropical Asia and tropical America disjunct
Ixonanthaceae	1	2	tropical Asia
Juncaginaceae	1	2	cosmopolitan
Linaceae	4	6	North temperate
Martyniaceae	1	1	tropical Asia and tropical America disjunct
Menyanthaceae	2	3	cosmopolitan
Myristicaceae	3	10	pan-tropic
Nyssaceae	2	5	East Asia and North America disjunct
Paeoniaceae	1	5	North temperate
Pandaceae	1	1	tropical Asia to tropical Africa
Pedaliaceae	1	1	Old World tropic
Pentaphragmataceae	1	1	tropical Asia
Pentaphylacaceae	1	1	tropical Asia
Podostemaceae	1	1	tropical Asia and tropical America disjunct
Polemoniaceae	1	1	North temperate
Rafflesiaceae	1	1	tropical Asia
Sargentodoxaceae	1	1	tropical Asia
Sladeniaceae	1	1	tropical Asia
Sonneratiaceae	1	1	Old World tropic
Stylidiaceae	1	1	pan-tropic
Tamaricaceae	2	4	Old World temperate

Table 5. Continued.

Family	Number of genera	Number of species	Distribution types
Tetracentraceae	1	1	Sino-Himalaya
Tetramelaceae	1	1	tropical Asia to tropical Australia
Toricelliaceae	1	1	Sino-Himalaya

shared with Taiwan. None of the two Chinese endemic families in Yunnan (Eucommiaceae and Ginkgoaceae) occurs in Taiwan. Although there are 73 genera of East Asian distribution common to Yunnan and Taiwan, there are another 138 East Asian genera found in Yunnan alone and 27 East Asian genera found in Taiwan alone. Similarly, there are 10 genera endemic to China that are common in Yunnan and Taiwan, while 106 Chinese endemic genera are found in Yunnan alone and eight Chinese endemic genera are found in Taiwan alone. These numbers indicate that Yunnan and Taiwan, although located at opposite ends of the Eastern Asiatic floristic region, have diverged to some extent. The flora of Yunnan has been diversified in its biogeographical elements, while the flora of Taiwan seems to have had a relatively unsophisticated evolutionary history.

The floristic similarities at the family and genus levels between these provinces in southern China (Table 7) indicate that the lowest similarities are between Fujian and adjacent Taiwan. Dipterocarpaceae fossils were found in the Middle Miocene at 24°12'N, 117°53'E in Fujian (Shi & Li, 2010) but have not been recorded in Taiwan. This may imply that the flora of Taiwan significantly evolved after the Miocene. Ying and Hsu (2002) mentioned that endemic species contribute 29.3% in Taiwan, but only four genera are endemic. If compared with Ceylon, an island of continental origin in tropical Asia, which has 27 endemic genera and 853 endemic species among its 1056 genera and 2855 angiosperm plants (Gunatilleke & Gunatilleke, 1990), the much lower endemism at the generic level in Taiwan may imply that it was not isolated biogeographically from mainland China by the Taiwan Strait until relatively recently.

In the flora of Yunnan, the genera of tropical Asian distribution contribute the highest proportion of the total genera at 22.1%, and those of pantropical distribution contribute 14.4%. In the flora of Taiwan, the genera of pantropical distribution contribute the highest proportion of the total genera at 21.6%, and those of tropical Asian distribution contribute 13.4%.

Table 6. Biogeographical elements at the generic level for genera shared by Yunnan and Taiwan and for genera found in only one of the two provinces.

Biogeographical elements at generic level	Shared by Yunnan and Taiwan		Found in Yunnan, SW China		Found in Taiwan, SE China	
	No. of genera	%*	No. of genera	%*	No. of genera	%*
Cosmopolitan	80	7.7	10	0.9	8	4.2
Pantropic	242	23.2	67	6.1	25	13.2
Tropical Asia and tropical America disjunct	28	2.7	17	1.6	6	3.2
Old World tropic	100	9.6	46	4.2	17	9.0
Tropical Asia to tropical Australia	87	8.3	59	5.4	28	14.8
Tropical Asia to tropical Africa	48	4.6	61	5.6	5	2.6
Tropical Asia	129	12.3	343	31.3	36	19.0
North temperate	140	13.4	94	8.6	12	6.3
East Asia and North America disjunct	54	5.2	36	3.3	8	4.2
Old World temperate	47	4.5	64	5.8	3	1.6
Temperate Asia	6	0.6	15	1.4	0	0.0
Mediterranean, Western Asia to Central Asia	1	0.1	22	2.0	6	3.2
Central Asia	0	0.0	17	1.6	0	0.0
East Asia	73	7.0	138	12.6	27	14.3
Endemic to China	10	1.0	106	9.7	8	4.2
Total no. of genera	1045	100.0	1095	100.0	190	100.0

*Percentage was calculated by the number of genera in each geographical element divided by the number of genera of all geographical elements, then multiplied by 100%.

The relatively high proportion of the tropical Asian element in Yunnan supports the tectonic hypothesis that the uplift in the Himalaya-Tibetan plateau region, resulting from crustal thickening and lateral extrusion of Indochina, occurred synchronously during the transition between the Oligocene and Miocene as a reaction to the Indo-Asian collision (Tapponnier et al., 1990; Che et al., 2010). It is apparent that the flora of Yunnan was strongly affected by the tropical Asian flora in its late evolution (Zhu, 2012).

Of the 474 genera of tropical Asian distribution in Yunnan, only 129 are shared with Taiwan (Table 6). Of the 12 tropical Asian families in Yunnan, 10 are not seen in Taiwan (Table 5). There are some pantropical families in Yunnan, such as Burseraceae, Dipterocarpaceae, Dilleniaceae, and Myristicaceae, which are well-diversified woody families in the tropical Asian rainforest, not found in Taiwan, with the exception of Myristicaceae, which is only naturally found in Lanyu Island, off of southwestern Taiwan. Obviously, these tropical Asian elements

Table 7. Similarity coefficients at the family and genus levels between the floras of Yunnan (225 families, 2140 genera), Guangxi (209 families, 1653 genera), Guangdong (197 families, 1413 genera), Fujian (193 families, 1155 genera), and Taiwan (190 families, 1234 genera).

Compared flora	Yunnan	Guangxi	Guangdong	Fujian	Taiwan
Similarity coefficients at family level*					
Yunnan	100				
Guangxi	93.3	100			
Guangdong	94.2	99.0	100		
Fujian	96.4	96.4	93.3	100	
Taiwan	95.8	95.8	93.2	92.6	100
Similarity coefficients at generic level*					
Yunnan	100				
Guangxi	87.4	100			
Guangdong	86.3	91.0	100		
Fujian	88.4	90.4	87.5	100	
Taiwan	84.6	78.2	75.0	73.3	100

* The similarity coefficient between A and B is calculated by the number of taxa shared by both A and B divided by the lowest number of taxa of A or B, then multiplied by 100%.

have been developed in Yunnan since the Late Tertiary, but they are not a major contribution to the flora of Taiwan. The pollen record from the Toushe Basin (23°49'N; 120°53'E; 650 m above sea level) in central Taiwan displayed that instead of today's closed subtropical evergreen broad-leaved forest dominated by *Machilus* Rumph.–*Castanopsis* (D. Don) Spach surrounding the basin, temperate deciduous forest predominated during most of the last glacial interval (Liew et al., 2006). This infers that Taiwan had a much colder climate in the past, which may be the reason that tropical plants of Southeast Asia have not been a major floristic element in Taiwan. In their floristic regionalization of China, Wu and Wu (1996) and Wu et al. (2010) moved Taiwan into the Paleotropical floristic kingdom. Based on the information above, it is better to keep Taiwan under the Eastern Asiatic Kingdom.

Looking across geographical elements at the shared genera, and the genera only in Yunnan or Taiwan (Table 6), the geographical elements can be divided into two groups. In one group, there are more shared than unshared genera, including cosmopolitan, pantropical, tropical Asia and tropical America disjunct, Old World tropic, north temperate, and East Asia and North America disjunct distributions. These geographical elements have a predominantly transcontinental distribution, although some of them could be easily dispersed ones. The second group has more unshared than shared genera, found in Yunnan, including those elements of tropical Asia, tropical Asia to tropical Africa, Old World temperate, temperate Asia, Mediterranean and western to central Asia, central Asia, East Asia, and Chinese endemic distributions. The occurrences of the genera of these distributions in Yunnan can be attributed to tectonic events, such as the collision of the Indian plate of Gondwana, the Tethys ocean closure, the Himalayan uplift, and extrusion of the Indochina block. From these patterns of geographical elements in Yunnan and Taiwan, one could infer that the floras of Yunnan and Taiwan are both derived from a common Tertiary flora of East Asia, composed mainly of elements with pantropic, Old World tropic, north temperate, and East Asia and North America disjunct distributions, and later diverged largely by the additions of tropical Asia, tropical Asia to tropical Africa, Old World temperate, East Asia, and Chinese endemic elements in Yunnan after tectonic events since the Late Tertiary. As a result, vegetation in northwestern Yunnan has evolved into a temperate-featured flora corresponding with the uplift of the Himalayas, while the vegetation in southern Yunnan has evolved a

more tropical Asian flora with the extrusion of the Indochina block. The flora of Taiwan underwent a relatively unsophisticated evolutionary history with uplifting to an island after the Late Tertiary.

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- Appendix 1. Families and genera of seed plants known for Yunnan (Y) and Taiwan (T). Note the sources that support the lists from the *Flora of Yunnan* (Wu, 1977–2006, and updated database at KUN) and the *Flora of Taiwan* (Boufford et al., 2003)
- Acanthaceae** (Y, gen. 55; T, gen. 14): *Acanthus* L. (Y, sp. 1); *Adenacanthus* Nees (Y, sp. 1), *Adhatoda* Mill. (Y, sp. 1), *Aechmanthera* Nees (Y, spp. 2), *Andrographis* Wall. (Y, spp. 2), *Asystasia* Blume (Y, spp. 3), *Asystasiella* Lindau (Y, sp. 1; T, sp. 1), *Avicennia* L. (T, sp. 1), *Baphicacanthus* Bremek. (Y, sp. 1), *Barleria* L. (Y, spp. 3), *Calophanoides* Ridl. (Y, spp. 11), *Championella* Bremek. (Y, spp. 3), *Chroesthes* Benoist (Y, sp. 1), *Clinacanthus* Nees (Y, sp. 1), *Codonacanthus* Nees (Y, sp. 1; T, sp. 1), *Cystacanthus* T. Anderson (Y, spp. 4), *Dicliptera* Juss. (Y, spp. 5; T, sp. 1), *Diflugossa* Bremek. (Y, spp. 4), *Dipteracanthus* Nees (Y, sp. 1; T, sp. 1), *Echinacanthus* Nees (Y, sp. 1), *Eranthemum* L. (Y, spp. 4), *Gendarussa* Nees (Y, spp. 2), *Goldfussia* Nees (Y, spp. 7), *Gutzlaffia* Hance (Y, sp. 1), *Hemigraphis* Nees (T, spp. 3), *Hygrophila* R. Br. (Y, spp. 4; T, spp. 4), *Hymenochlaena* Bremek. (Y, sp. 1), *Hypoestes* Sol. ex R. Br. (Y, sp. 1; T, spp. 2), *Isoglossa* Oerst. (Y, sp. 1), *Kudoacanthus* Hosok. (T, sp. 1), *Lepidagathis* Willd. (Y, spp. 2; T, spp. 4), *Mananthes* Bremek. (Y, spp. 4), *Nelsonia* R. Br. (Y, sp. 1), *Ophiorrhizophyllon* Kurz (Y, sp. 1), *Paragutzlaffia* H. P. Tsui (Y, spp. 2), *Pararuellia* Bremek. & Nannenga-Bremek. (Y, spp. 3), *Perilepta* Bremek. (Y, spp. 3), *Peristrophe* Nees (Y, spp. 7; T, spp. 2), *Phaulopsis* Willd. (Y, sp. 1), *Phlogacanthus* Nees (Y, spp. 4), *Pseudaechmanthera* Bremek. (Y, sp. 1), *Pseuderanthemum* Radlk. (Y, spp. 7), *Pteracanthus* (Nees) Bremek. (Y, spp. 24), *Pteroptychia* Bremek. (Y, sp. 1), *Pyrrothrix* Bremek. (Y, spp. 3), *Rhaphidospora* Nees (Y, sp. 1), *Rhinacanthus* Nees (Y, spp. 3), *Rostellularia* Rehb. (Y, spp. 3), *Rungia* Nees (Y, spp. 6; T, spp. 2), *Semnostachya* Bremek. (Y, spp. 2), *Sericocalyx* Bremek. (Y, sp. 1), *Staurogyne* Wall. (Y, spp. 6; T, spp. 2), *Strobilanthes* Blume (Y, spp. 10; T, spp. 6), *Sympagis* (Nees) Bremek. (Y, sp. 1), *Tarphochlamys* Bremek. (Y, sp. 1), *Tetraglochidium* Bremek. (Y, spp. 2), *Tetragoga* Bremek. (Y, sp. 1), *Thunbergia* Retz. (Y, spp. 6).
- Acoraceae** (Y, gen. 1; T, gen. 1): *Acorus* L. (Y, spp. 4; T, sp. 1).
- Actinidiaceae** (Y, gen. 3; T, gen. 1): *Actinidia* Lindl. (Y, spp. 23; T, spp. 6), *Clematoclethra* (Franch.) Maxim. (Y, spp. 2), *Saurauia* Willd. (Y, spp. 12).
- Adoxaceae** (Y, gen. 2; T, gen. 1): *Adoxa* L. (Y, sp. 1), *Viburnum* L. (Y, spp. 43; T, spp. 14).
- Akaniaceae** (Y, gen. 1; T, gen. 1): *Bretschneidera* Hemsl. (Y, sp. 1; T, sp. 1).
- Alismataceae** (Y, gen. 3; T, gen. 3): *Alisma* L. (Y, sp. 1; T, sp. 1), *Caldesia* Parl. (Y, sp. 1; T, sp. 1), *Sagittaria* L. (Y, spp. 4; T, spp. 2).
- Amaranthaceae** (Y, gen. 9; T, gen. 8): *Achyranthes* L. (Y, spp. 2; T, spp. 2), *Aerva* Forssk. (Y, spp. 2; T, sp. 1), *Alternanthera* Forssk. (Y, spp. 4; T, spp. 4), *Amaranthus* L. (Y, spp. 7; T, spp. 4), *Celosia* L. (Y, spp. 2; T, spp. 2), *Cyathula* Blume (Y, spp. 3; T, sp. 1), *Deeringia* R. Br. (Y,

sp. 1; T, spp. 2), *Philoxerus* R. Br. (T, sp. 1), *Psilotrichum* Blume (Y, sp. 1), *Stilbanthus* Hook. f. (Y, sp. 1)

Amaryllidaceae (Y, gen. 5; T, gen. 3): *Allium* L. (Y, spp. 25; T, spp. 2), *Crinum* L. (Y, spp. 2; T, sp. 1), *Lycoris* Herb. (Y, spp. 4; T, sp. 1), *Narcissus* L. (Y, sp. 1), *Nothoscordum* Kunth (Y, sp. 1).

Anacardiaceae (Y, gen. 15; T, gen. 4): *Buchanania* Spreng. (Y, spp. 2; T, sp. 1), *Choerospondias* Burtt & A. W. Hill (Y, sp. 1), *Cotinus* Mill. (Y, spp. 2), *Dobinea* Buch.-Ham. (Y, spp. 2), *Dracontomelon* Blume (Y, spp. 2), *Drimycarpus* Hook. f. (Y, spp. 2), *Lannea* A. Rich. (Y, sp. 1), *Mangifera* L. (Y, spp. 5), *Pegia* Colebr. (Y, spp. 2), *Pistacia* L. (Y, spp. 2; T, sp. 1), *Rhus* L. (Y, spp. 5; T, spp. 4), *Semecarpus* L. f. (Y, spp. 2; T, spp. 2), *Spondias* L. (Y, spp. 3), *Terminthia* Bernh. (Y, sp. 1), *Toxicodendron* Mill. (Y, spp. 13).

Annonaceae (Y, gen. 15; T, gen. 3): *Alphonsea* Hook. f. & Thomson (Y, spp. 5), *Artabotrys* R. Br. (Y, spp. 5), *Cyathostemma* Griff. (Y, sp. 1), *Dasymaschalon* (Hook. f. & Thomson) Dalle Torre & Harms (Y, spp. 2), *Desmos* Lour. (Y, spp. 4), *Fissistigma* Griff. (Y, spp. 16; T, spp. 2), *Goniotalamus* (Bl.) Hook. f. & Thomson (Y, spp. 5; T, sp. 1), *Mezzettiopsis* Ridl. (Y, sp. 1), *Miliusa* Lesch. (Y, spp. 4), *Mitrephora* (Bl.) Hook. f. & Thomson (Y, spp. 3), *Orophea* Blume (Y, spp. 2), *Phaeanthus* Hook. f. & Thomson (Y, sp. 1), *Polyalthia* Blume (Y, spp. 10; T, sp. 1), *Pseuduvaria* Miq. (Y, sp. 1), *Uvaria* L. (Y, spp. 5).

Apocynaceae (Y, gen. 48; T, gen. 19): *Aganosma* G. Don (Y, spp. 4), *Alstonia* R. Br. (Y, spp. 4), *Alyxia* Banks (Y, spp. 9; T, spp. 2), *Amalocalyx* Pierre (Y, sp. 1), *Anodendron* A. DC. (Y, sp. 1; T, spp. 2), *Asclepias* L. (Y, sp. 1; T, sp. 1), *Beaumontia* Wall. (Y, spp. 4), *Belostemma* Wall. (Y, spp. 2), *Biondia* Schl. (Y, spp. 2), *Bousigonia* Pierre (Y, spp. 2), *Brachystelma* R. Br. (Y, sp. 1), *Calotropis* R. Br. (Y, spp. 2), *Carissa* L. (Y, spp. 2), *Cerbera* L. (T, sp. 1), *Ceropegia* L. (Y, spp. 8), *Chonemorpha* G. Don (Y, spp. 6), *Cynanchum* L. (Y, spp. 23; T, spp. 4), *Dischidia* R. Br. (Y, spp. 4; T, sp. 1), *Dolichopetalum* Tsiang (Y, sp. 1), *Dregea* E. Mey. (Y, spp. 3; T, sp. 1), *Epigynum* Wight (Y, sp. 1), *Ervatamia* (A. DC.) Stapf (Y, spp. 8), *Gongronema* (Endl.) Decne. (Y, sp. 1), *Gymnema* R. Br. (Y, spp. 7; T, sp. 1), *Heterostemma* Wight & Arn. (Y, spp. 6; T, sp. 1), *Holarrhena* R. Br. (Y, sp. 1; T, sp. 1), *Holostemma* R. Br. (Y, sp. 1), *Hoya* R. Br. (Y, spp. 15; T, sp. 1), *Ichnocarpus* R. Br. (Y, sp. 1), *Kopsia* Blume (Y, sp. 1), *Marsdenia* R. Br. (Y, spp. 15; T, spp. 2), *Melodinus* J. R. Forst. & G. Forst. (Y, spp. 6; T, sp. 1), *Metaplexis* R. Br. (Y, sp. 1), *Parameria* Benth. (Y, sp. 1), *Paravallaris* Pierre ex Hua (Y, spp. 2), *Parepigynum* Tsiang & P. T. Li (Y, sp. 1), *Parsonsia* R. Br. (T, sp. 1), *Pentasacme* Wall. (Y, sp. 1), *Pottsia* Hook. & Arn. (Y, spp. 3), *Raphistemma* Wall. (Y, sp. 1), *Rauwolfia* L. (Y, spp. 6; T, sp. 1), *Sindechites* Oliv. (Y, sp. 1), *Stephanotis* Thouars (Y, spp. 2), *Strophanthus* DC. (Y, spp. 4), *Tabernaemontana* L. (T, spp. 2), *Telosma* Coville (Y, spp. 2; T, sp. 1), *Thevetia* L. (Y, sp. 1), *Trachelospermum* Lem. (Y, spp. 7; T, spp. 4), *Tylophora* R. Br. (Y, spp. 10; T, spp. 3), *Vallaris* Burm. f. (Y, sp. 1), *Wrightia* R. Br. (Y, spp. 5).

Aponogetonaceae (T, gen. 1): *Aponogeton* L. f. (Y, sp. 1; T, sp. 1).

Aquifoliaceae (Y, gen. 1; T, gen. 1): *Ilex* L. (Y, spp. 79; T, spp. 21).

Araceae (Y, gen. 21; T, gen. 14): *Aglaonema* Schott (Y, spp. 2), *Alocasia* Schott (Y, spp. 3; T, spp. 2), *Amorphophallus* Blume (Y, spp. 8; T, spp. 4), *Anadendrum* Schott (Y, spp. 2), *Arisaema* Mart. (Y, spp. 39; T, spp. 9), *Colocasia* Schott (Y, spp. 5; T, spp. 4), *Cryptocoryne* Fisch. (Y, sp. 1), *Epipremnopsis* Engl. (Y, spp. 2), *Epipremnum* Schott (Y, sp.

1; T, spp. 2), *Gonatanthus* Klotzsch (Y, spp. 2), *Hapaline* Schott (Y, sp. 1), *Homalomena* Schott (Y, spp. 2; T, spp. 2), *Lasia* Lour. (Y, sp. 1), *Pinellia* Ten. (Y, spp. 2; T, sp. 1), *Pistia* L. (Y, sp. 1; T, sp. 1), *Pothoidium* Schott (T, sp. 1), *Pothos* L. (Y, spp. 5; T, sp. 1), *Remusatia* Schott (Y, spp. 2; T, sp. 1), *Rhaphidophora* Hassk. (Y, spp. 9; T, spp. 2), *Sauromatum* Schott (Y, sp. 1), *Schismatoglottis* Zoll. & Moritzi (T, sp. 1), *Steudnera* K. Koch (Y, spp. 2), *Typhonium* Schott (Y, spp. 8; T, spp. 2).

Araliaceae (Y, gen. 18; T, gen. 9): *Acanthopanax* Miq. (Y, spp. 9), *Aralia* L. (Y, spp. 18; T, spp. 4), *Brassaiopsis* Decne. & Planch. (Y, spp. 20), *Dendropanax* Decne. & Planch. (Y, spp. 7; T, spp. 2), *Diplopanax* Hand.-Mazz. (Y, sp. 1), *Eleutherococcus* Maxim. (T, sp. 1), *Fatsia* Decne. & Planch. (Y, spp. 2; T, sp. 1), *Hedera* L. (Y, sp. 1), *Heteropanax* Seem. (Y, spp. 4), *Kalopanax* Miq. (Y, sp. 1), *Macropanax* Miq. (Y, spp. 5), *Merrillipanax* H. L. Li (Y, spp. 2), *Metapanax* J. Wen & Frodin (Y, spp. 2), *Osmoxylon* Miq. (T, sp. 1), *Panax* L. (Y, spp. 4), *Pentapanax* Seem. (Y, spp. 8; T, sp. 1), *Schefflera* J. R. Forst. & G. Forst. (Y, spp. 30; T, spp. 4), *Sinopanax* H. L. Li (T, sp. 1), *Tetrapanax* K. Koch (Y, sp. 1; T, sp. 1), *Trevesia* Vis. (Y, sp. 1), *Tupidanthus* Hook. f. & Thomson (Y, sp. 1).

Aristolochiaceae (Y, gen. 2; T, gen. 2): *Aristolochia* L. (Y, spp. 24; T, spp. 5), *Asarum* L. (Y, spp. 7; T, spp. 6).

Asclepiadaceae (Y, gen. 10; T, gen. 2): *Adelostemma* Hook. f. (Y, sp. 1), *Cryptolepis* R. Br. (Y, spp. 2; T, sp. 1), *Genianthus* Hook. f. (Y, sp. 1), *Goniostemma* Wight (Y, sp. 1), *Jasminanthes* Blume (Y, sp. 1; T, sp. 1), *Myriopterion* Griff. (Y, sp. 1), *Oxystelma* R. Br. (Y, sp. 1), *Periploca* L. (Y, spp. 3), *Secamone* R. Br. (Y, spp. 4), *Streptocaulon* Wight & Arn. (Y, spp. 2), *Toxocarpus* Wight & Arn. (Y, spp. 5).

Asparagaceae (Y, gen. 3; T, gen. 3): *Agave* L. (Y, spp. 3; T, sp. 1), *Asparagus* L. (Y, spp. 13; T, sp. 1), *Dracaena* Vand. ex L. (Y, spp. 6; T, spp. 2).

Asteraceae (Y, gen. 132; T, gen. 76): *Acanthospermum* Schrank (Y, sp. 1), *Achillea* L. (Y, sp. 1), *Acmella* Rich. (T, spp. 2), *Adenocaulon* Hook. (Y, sp. 1), *Adenostemma* J. R. Forst. & G. Forst. (Y, sp. 1; T, sp. 1), *Ageratina* Spach (Y, sp. 1; T, sp. 1), *Ageratum* L. (Y, spp. 2; T, spp. 2), *Ainsliaea* DC. (Y, spp. 27; T, spp. 3), *Ajania* Poljakov (Y, spp. 7), *Ambrosia* L. (T, sp. 1), *Anaphalis* DC. (Y, spp. 26; T, spp. 4), *Anisopappus* Hook. & Arn. (Y, sp. 1), *Arctium* L. (Y, sp. 1), *Artemisia* L. (Y, spp. 54; T, spp. 15), *Aster* L. (Y, spp. 36; T, spp. 16), *Atractylodes* DC. (Y, spp. 2), *Bidens* L. (Y, spp. 5; T, spp. 4), *Blainvillea* Cass. (Y, sp. 1), *Blumea* DC. (Y, spp. 26; T, spp. 11), *Blumeopsis* Gagnep. (Y, sp. 1), *Calendula* L. (Y, sp. 1), *Callistephus* Cass. (Y, sp. 1), *Camchaya* Gagnep. (Y, sp. 1), *Carduus* L. (Y, spp. 2), *Carpesium* L. (Y, spp. 11; T, spp. 5), *Carthamus* L. (Y, sp. 1), *Centaurea* L. (Y, sp. 1), *Centipeda* Lour. (Y, sp. 1; T, sp. 1), *Cephalorrhynchus* Boiss. (Y, sp. 1), *Chaetoseris* C. Shih (Y, spp. 14), *Chrysanthemum* L. (Y, spp. 2), *Cicerbita* Wallr. (Y, sp. 1), *Cichorium* L. (T, sp. 1), *Cirsium* Mill. (Y, spp. 16; T, spp. 8), *Cissampelopsis* (DC.) Miq. (Y, spp. 5), *Conyza* Less. (Y, spp. 8; T, spp. 6), *Coreopsis* L. (Y, spp. 2), *Cotula* L. (Y, sp. 1; T, sp. 1), *Crassocephalum* Moench (Y, sp. 1; T, sp. 1), *Cremanthodium* Benth. (Y, spp. 36), *Crepidiastrum* Nakai (T, spp. 2), *Crepis* L. (Y, spp. 7), *Crossostephium* Less. (T, sp. 1), *Cyathocline* Cass. (Y, sp. 1), *Dendranthema* (DC.) Des Moul. (Y, spp. 4; T, spp. 4), *Dichrocephala* L'Hér. ex DC. (Y, spp. 3; T, sp. 1), *Diplazoptilon* Y. Ling (Y, sp. 1), *Doellingeria* Nees (Y, sp. 1), *Dolomiaea* DC. (Y, spp. 6), *Doronicum* L. (Y, spp. 2), *Dubyaea* DC. (Y, spp. 5), *Echinops* L. (T, sp. 1), *Eclipta*

- L. (Y, sp. 1; T, spp. 2), *Elephantopus* L. (Y, sp. 1; T, spp. 2), *Emilia* Cass. (Y, spp. 2; T, sp. 1), *Enydra* Lour. (Y, sp. 1), *Epaltes* Cass. (Y, sp. 1; T, sp. 1), *Erechtites* Raf. (Y, sp. 1; T, spp. 2), *Erigeron* L. (Y, spp. 8; T, spp. 2), *Ethulia* L. f. (Y, sp. 1), *Eupatorium* L. (Y, spp. 6; T, spp. 7), *Faberia* Hemsl. (Y, spp. 3), *Farfugium* Lindl. (T, sp. 1), *Formania* W. W. Sm. & Small (Y, sp. 1), *Galinsoga* Ruiz & Pav. (Y, sp. 1; T, spp. 2), *Gerbera* L. (Y, spp. 5; T, sp. 1), *Glossocardia* Cass. (T, sp. 1), *Gnaphalium* L. (Y, spp. 7; T, spp. 8), *Gochnatia* Kunth (Y, sp. 1), *Grangea* Adans. (Y, sp. 1; T, sp. 1), *Gynura* Cass. (Y, spp. 8; T, spp. 3), *Hemisteptia* Bunge (Y, sp. 1; T, sp. 1), *Heteropappus* Less. (Y, sp. 1), *Hieracium* L. (Y, sp. 1; T, sp. 1), *Hippolytia* Poljakov (Y, spp. 2), *Hypochaeris* L. (T, sp. 1), *Inula* L. (Y, spp. 9), *Ixeridium* (A. Gray) Tzvel. (Y, spp. 4; T, spp. 2), *Ixeris* Cass. (Y, sp. 1; T, spp. 6), *Kalimeris* Cass. (Y, sp. 1), *Lactuca* L. (Y, spp. 2), *Lagenophora* Cass. (Y, sp. 1; T, sp. 1), *Laggera* Sch.-Bip. (Y, spp. 2; T, sp. 1), *Lapsana* L. (Y, sp. 1), *Lapsanastrum* Pak & K. Bremer (T, spp. 2), *Launaea* Cass. (Y, sp. 1), *Leibnitzia* Cass. (Y, spp. 4), *Leontopodium* R. Brown (Y, spp. 14; T, sp. 1), *Ligularia* Cass. (Y, spp. 57; T, spp. 3), *Microglossa* DC. (Y, sp. 1; T, sp. 1), *Mikania* Willd. (Y, sp. 1; T, sp. 1), *Mulgedium* Cass. (Y, spp. 3), *Myriactis* Less. (Y, spp. 4; T, sp. 1), *Nannoglottis* Maxim. (Y, spp. 3), *Nemosencio* (Kitam.) B. Nord. (Y, spp. 3; T, sp. 1), *Neopallasia* (Pall.) Poljak. (Y, sp. 1), *Notoseris* C. Shih (Y, spp. 3; T, sp. 1), *Nouelia* Franch. (Y, sp. 1), *Paraixeris* Nakai (Y, spp. 2), *Paramicrorhynchus* Kirp. (Y, sp. 1), *Paraprenanthes* C. C. Chang (Y, spp. 6; T, sp. 1), *Parasenecio* W. W. Sm. & Small (Y, spp. 15; T, spp. 3), *Parthenium* L. (Y, spp. 2), *Pentanema* Cass. (Y, sp. 1), *Pertya* Sch.-Bip. (Y, spp. 3; T, sp. 1), *Petasites* Mill. (Y, spp. 2; T, sp. 1), *Picris* L. (Y, spp. 3), *Piloselloides* (Less.) C. Jeffr. (Y, sp. 1), *Pluchea* Cass. (Y, sp. 1; T, spp. 4), *Prenanthes* L. (Y, spp. 4), *Pseudelephantopus* Rohr (T, sp. 1), *Pterocypsella* C. Shih (Y, spp. 3; T, spp. 3), *Pyrethrum* Zinn. (Y, spp. 2), *Rhynchospermum* Reinw. (Y, sp. 1; T, sp. 1), *Saussurea* DC. (Y, spp. 90; T, spp. 5), *Senecio* L. (Y, spp. 28; T, spp. 7), *Serratula* L. (Y, sp. 1), *Sheareria* S. Moore (Y, sp. 1), *Sigesbeckia* L. (Y, spp. 3; T, sp. 1), *Sinacalia* H. Rob. & Brettell (Y, sp. 1), *Sinosenecio* B. Nord. (Y, spp. 7), *Solidago* L. (Y, sp. 1; T, sp. 1), *Soliva* Ruiz & Pav. (T, spp. 2), *Sonchus* L. (Y, spp. 6; T, spp. 3), *Soroseris* Stebb. (Y, spp. 3), *Sphaeranthus* L. (Y, spp. 3; T, sp. 1), *Spilanthes* Jacq. (Y, spp. 2), *Stebbinsia* Lipsch. (Y, sp. 1), *Stenoseric* C. Shih (Y, spp. 4), *Syncalathium* Lipsch. (Y, sp. 1), *Synedrella* Gaertn. (Y, sp. 1; T, sp. 1), *Syneilesis* Maxim. (T, spp. 2), *Synotis* (C. B. Clarke) C. Jeffrey & Y. L. Che (Y, spp. 27), *Taraxacum* F. H. Wigg (Y, spp. 12; T, spp. 2), *Tephrosieris* (Reichenb.) Reichenb. (Y, sp. 1; T, spp. 2), *Thespis* DC. (Y, sp. 1), *Tragopogon* L. (Y, sp. 1), *Tricholepis* DC. (Y, sp. 1), *Tridax* L. (Y, sp. 1; T, sp. 1), *Tussilago* L. (Y, sp. 1), *Vernonia* Schreb. (Y, spp. 22; T, spp. 5), *Wedelia* Jacq. (Y, spp. 3; Y, T, spp. 4), *Xanthium* L. (Y, sp. 1; T, sp. 1), *Xanthopappus* C. Winkl. (Y, sp. 1), *Youngia* Cass. (Y, spp. 14; T, sp. 1).
- Balanophoraceae** (Y, gen. 2; T, gen. 1): *Balanophora* J. R. Forst. & G. Forst. (Y, spp. 6; T, spp. 5), *Rhopalocnemis* Jungh. (Y, sp. 1).
- Balsaminaceae** (Y, gen. 1; T, gen. 1): *Impatiens* L. (Y, spp. 112; T, spp. 3).
- Begoniaceae** (Y, gen. 1; T, gen. 1): *Begonia* L. (Y, spp. 92; T, spp. 13).
- Berberidaceae** (Y, gen. 8; T, gen. 3): *Berberis* L. (Y, spp. 88; T, spp. 7), *Caulophyllum* Michx. (Y, sp. 1), *Diphylleia* Michx. (Y, sp. 1), *Dysosma* Woodson (Y, spp. 5; T, sp. 1), *Epimedium* L. (Y, spp. 2), *Mahonia* Nutt. (Y, spp. 17; T, spp. 2), *Nandina* Thunb. (Y, sp. 1), *Sinopodophyllum* T. S. Ying (Y, sp. 1).
- Betulaceae** (Y, gen. 6; T, gen. 3): *Alnus* Mill. (Y, spp. 3; T, sp. 1), *Betula* L. (Y, spp. 11), *Carpinus* L. (Y, spp. 14; T, spp. 3), *Corylus* L. (Y, spp. 6; T, sp. 1), *Ostrya* Scop. (Y, sp. 1), *Ostryopsis* Decne. (Y, sp. 1).
- Bignoniaceae** (Y, gen. 12; T, gen. 2): *Campsis* Lour. (Y, sp. 1), *Catalpa* Scop. (Y, spp. 3), *Dolichandrone* (Fenzl) Seem. (Y, spp. 2), *Incarvillea* Juss. (Y, spp. 6), *Mayodendron* Kurz (Y, sp. 1), *Millingtonia* L. f. (Y, sp. 1), *Nyctocalos* Teijsm. & Binn. (Y, spp. 2), *Oroxylum* Vent. (Y, sp. 1), *Pauletopia* Steenis (Y, sp. 1), *Paulownia* Sieb. & Zucc. (Y, spp. 4; T, spp. 3), *Radermachera* Zoll. & Moritz (Y, spp. 4; T, sp. 1), *Stereospermum* Cham. (Y, spp. 3).
- Bombacaceae** (Y, gen. 1; T, gen. 1): *Bombax* L. (Y, spp. 2; T, sp. 1).
- Boraginaceae** (Y, gen. 20; T, gen. 13): *Antiotrema* Hand.-Mazz. (Y, sp. 1), *Bothriospermum* Bunge (Y, spp. 2; T, sp. 1), *Carmona* Cav. (T, sp. 1), *Chionocharis* I. M. Johnst. (Y, sp. 1), *Coldenia* L. (T, sp. 1), *Cordia* L. (Y, spp. 2; T, sp. 1), *Cynoglossum* L. (Y, spp. 4; T, spp. 3), *Ehretia* P. Browne (Y, spp. 7; T, spp. 5), *Eritrichium* Schrad. (Y, spp. 3), *Heliotropium* L. (Y, spp. 3; T, spp. 2), *Lasiocaryum* I. M. Johnst. (Y, spp. 2), *Lithospermum* L. (Y, spp. 2; T, sp. 1), *Microcaryum* I. M. Johnst. (Y, sp. 1), *Microula* Benth. (Y, spp. 8), *Myosotis* L. (Y, spp. 2; T, sp. 1), *Onosma* L. (Y, spp. 14), *Rotula* Lour. (Y, sp. 1), *Sinojohnstonia* Hu (Y, sp. 1), *Thyrocarpus* Hance (Y, sp. 1; T, sp. 1), *Tournefortia* L. (Y, sp. 1; T, spp. 2), *Trichodesma* R. Br. (Y, sp. 1; T, sp. 1), *Trigonotis* Steven (Y, spp. 14; T, spp. 3).
- Borthwickiaceae** (Y, gen. 1): *Borthwickia* W. W. Sm. (Y, sp. 1).
- Burmanniaceae** (Y, gen. 1; T, gen. 3): *Burmannia* L. (Y, spp. 7; T, spp. 3), *Gymnosiphon* Blume (T, sp. 1), *Thismia* Griff. (T, sp. 1).
- Burseraceae** (Y, gen. 3): *Canarium* L. (Y, spp. 7), *Garuga* Roxb. (Y, spp. 4), *Protium* Burm. f. (Y, spp. 2).
- Butomaceae** (Y, gen. 2): *Limnocharis* Bonpl. (Y, sp. 1), *Tenagocharis* Hochst. (Y, sp. 1).
- Buxaceae** (Y, gen. 3; T, gen. 3): *Buxus* L. (Y, spp. 8; T, sp. 1), *Pachysandra* Michx. (Y, spp. 2; T, sp. 1), *Sarcococca* Lindl. (Y, spp. 6; T, sp. 1).
- Cabombaceae** (Y, gen. 1; T, gen. 1): *Brasenia* Schreb. (Y, sp. 1; T, sp. 1).
- Calycanthaceae** (Y, gen. 1): *Chimonanthus* Lindl. (Y, spp. 2).
- Campanulaceae** (Y, gen. 13; T, gen. 9): *Adenophora* Fisch. (Y, spp. 7; T, spp. 2), *Asyneuma* Griseb. & Schenk (Y, sp. 1), *Campanula* L. (Y, spp. 12; T, sp. 1), *Campanumoea* Blume (Y, spp. 4), *Codonopsis* Wall. (Y, spp. 19; T, sp. 1), *Cyananthus* Wall. ex Benth. (Y, spp. 19), *Cyclocodon* Griff. (T, sp. 1), *Hippobroma* G. Don (T, sp. 1), *Homocodon* D. Y. Hong (Y, sp. 1), *Leptocodon* (Hook. f.) Lem. (Y, spp. 2), *Lobelia* L. (Y, spp. 15; T, spp. 4), *Peracarpa* Hook. f. & Thomson (Y, sp. 1; T, sp. 1), *Platycodon* A. DC. (Y, sp. 1), *Pratia* Gaudich. (Y, spp. 2), *Triodanis* Raf. Greene (T, sp. 1), *Wahlenbergia* Schrad. (Y, sp. 1; T, sp. 1).
- Cardiopteridaceae** (Y, gen. 1): *Cardiopteris* Wall. (Y, sp. 1).
- Capparidaceae** (Y, gen. 4; T, gen. 2): *Capparis* L. (Y, spp. 19; T, spp. 4), *Cleome* L. (Y, spp. 6; T, spp. 3), *Crateva* L. (Y, spp. 3), *Stixis* Lour. (Y, sp. 1).
- Caprifoliaceae** (Y, gen. 18; T, gen. 7): *Abelia* R. Br. (Y, spp. 6; T, sp. 1), *Acanthocalyx* (DC.) M. Cannon (Y, spp. 3), *Cephalostigma* A. DC. (Y, sp. 1), *Cryptothladia* (Bunge) M. Cannon (Y, sp. 1), *Dipelta* Maxim. (Y, sp. 1), *Dipsacus* L. (Y, spp. 5), *Leycesteria* Wall. (Y, spp. 4), *Lonicera* L. (Y, spp. 39; T, spp. 7), *Nardostachys* DC. (Y, sp. 1), *Patrinia* Juss. (Y, spp. 4; T, spp. 4), *Pterocephalus* Adans. (Y, spp. 2), *Sambucus* L. (Y, spp. 3; T, sp. 1), *Scabiosa* L. (Y, sp. 1;

T, sp. 1), *Symphoricarpos* Duhamel (Y, sp. 1), *Triosteum* L. (Y, sp. 1), *Triplostegia* Wall. (Y, spp. 2; T, sp. 1), *Valeriana* L. (Y, spp. 8; T, spp. 3), *Weigela* Thunb. (Y, sp. 1).

Carlemanniaceae (Y, gen. 2): *Carlemannia* Benth. (Y, sp. 1), *Silvianthus* Hook. f. (Y, sp. 1).

Caryophyllaceae (Y, gen. 17; T, gen. 11): *Arenaria* L. (Y, spp. 43; T, spp. 3), *Brachystemma* D. Don (Y, sp. 1), *Cerastium* L. (Y, spp. 6; T, spp. 2), *Cucubalus* L. (Y, sp. 1; T, sp. 1), *Dianthus* L. (Y, spp. 5; T, spp. 3), *Drymaria* Willd. (Y, sp. 1; T, sp. 1), *Lychnis* L. (Y, spp. 3), *Moehringia* L. (T, sp. 1), *Myosoton* Moench (Y, sp. 1), *Polycarpaea* Lam. (Y, sp. 1; T, sp. 1), *Polycarpon* L. (Y, sp. 1), *Psammosilene* W. C. Wu & C. Y. Wu (Y, sp. 1), *Pseudostellaria* Pax (Y, spp. 3), *Sagina* L. (Y, spp. 2; T, spp. 2), *Silene* L. (Y, spp. 49; T, spp. 5), *Spergula* L. (T, sp. 1), *Spergularia* (Pers.) J. & C. Presl (Y, sp. 1), *Stellaria* L. (Y, spp. 19; T, spp. 5), *Vaccaria* Wolf (Y, sp. 1).

Celastraceae (Y, gen. 10; T, gen. 6): *Celastrus* L. (Y, spp. 18; T, spp. 4), *Euonymus* L. (Y, spp. 56; T, spp. 10), *Glyptopetalum* Thwaites (Y, spp. 5), *Loeseneriella* A. C. Sm. (Y, spp. 3), *Maytenus* Molina (Y, spp. 15; T, spp. 2), *Microtropis* Wall. (Y, spp. 18; T, spp. 2), *Perrottetia* Kunth (Y, sp. 1; T, sp. 1), *Pristimera* Miers (Y, spp. 3), *Salacia* L. (Y, spp. 6), *Tripterygium* Hook. f. (Y, sp. 1; T, sp. 1).

Cephalotaxaceae (Y, gen. 1; T, gen. 1): *Cephalotaxus* Sieb. & Zucc. (Y, spp. 6; T, sp. 1).

Ceratophyllaceae (Y, gen. 1; T, gen. 1): *Ceratophyllum* L. (Y, spp. 2; T, spp. 3).

Cercidiphyllaceae (Y, gen. 1): *Cercidiphyllum* Sieb. & Zucc. (Y, sp. 1).

Chenopodiaceae (Y, gen. 5; T, gen. 3): *Acroglochin* Schrad. (Y, spp. 2), *Atriplex* L. (T, spp. 2), *Axyris* L. (Y, sp. 1), *Chenopodium* L. (Y, spp. 6; T, spp. 5), *Kochia* Roth (Y, sp. 1), *Salsola* L. (Y, sp. 1), *Suaeda* Forssk. (T, sp. 1).

Chloranthaceae (Y, gen. 2; T, gen. 2): *Chloranthus* Sw. (Y, spp. 4; T, sp. 1), *Sarcandra* Gardn. (Y, spp. 2; T, sp. 1).

Circaeasteraceae (Y, gen. 1): *Circaeaster* Maxim. (Y, sp. 1).

Clethraceae (Y, gen. 1): *Clethra* L. (Y, spp. 5).

Clusiaceae (Y, gen. 4; T, gen. 2): *Calophyllum* L. (Y, spp. 2; T, spp. 2), *Garcinia* L. (Y, spp. 13; T, spp. 3), *Mesua* L. (Y, sp. 1), *Ochrocarpos* Noronha (Y, sp. 1).

Combretaceae (Y, gen. 4; T, gen. 2): *Anogeissus* Wall. (Y, sp. 1), *Combretum* Loefl. (Y, spp. 10), *Lumnitzera* Willd. (T, sp. 1), *Quisqualis* L. (Y, spp. 2), *Terminalia* L. (Y, spp. 6; T, sp. 1).

Commelinaceae (Y, gen. 11; T, gen. 8): *Amischotolype* Hassk. (Y, spp. 2; T, sp. 1), *Belosynapsis* Hassk. (Y, sp. 1; T, spp. 2), *Commelina* L. (Y, spp. 6; T, spp. 5), *Cyanotis* D. Don (Y, spp. 3; T, spp. 2), *Dictyospermum* Wight (Y, spp. 2), *Floscopa* Lour. (Y, spp. 2; T, sp. 1), *Murdannia* Royle (Y, spp. 14; T, spp. 4), *Polliia* Thunb. (Y, spp. 5; T, spp. 3), *Porandra* D. Y. Hong (Y, spp. 2), *Rhopalephora* Hassk. (T, sp. 1), *Spatholirion* Ridl. (Y, spp. 2), *Streptolirion* Edgew. (Y, spp. 2).

Connaraceae (Y, gen. 3; T, gen. 2): *Connarus* L. (Y, sp. 1; T, sp. 1), *Rourea* Aubl. (Y, sp. 1; T, sp. 1), *Roureopsis* Planch. (Y, sp. 1).

Convolvulaceae (Y, gen. 16; T, gen. 14): *Argyreia* Lour. (Y, spp. 16; T, sp. 1), *Blinkworthia* Choisy (Y, sp. 1), *Calonyction* Choisy (Y, spp. 3), *Calystegia* R. Br. (Y, spp. 2; T, sp. 1), *Convolvulus* L. (Y, sp. 1), *Cuscuta* L. (Y, spp. 5; T, spp. 4), *Dichondra* J. R. Forst. & G. Forst. (Y, sp. 1; T, sp. 1), *Erycibe* Roxb. (Y, spp. 4; T, sp. 1), *Evolvulus* L. (Y, sp. 1; T, sp. 1), *Hewittia* Wight & Arn. (Y, sp. 1; T, sp. 1), *Ipomoea* L. (Y, spp. 12; T, spp. 21), *Jacquemontia* Choisy (Y, sp. 1; T, spp. 2), *Lepistemon* Blume (T, sp. 1), *Merremia* Dennst. (Y, spp. 12; T, spp. 7), *Neuropeltis* Wall.

(Y, sp. 1), *Operculina* Silva Manso (Y, sp. 1; T, sp. 1), *Porana* Burm. f. (Y, spp. 12), *Stictocardia* Hallier f. (T, sp. 1), *Xenostegia* D. F. Austin & G. W. Staples (T, sp. 1).

Coriariaceae (Y, gen. 1; T, gen. 1): *Coriaria* L. (Y, spp. 2; T, sp. 1).

Cornaceae (Y, gen. 8; T, gen. 5): *Alangium* Lam. (Y, spp. 7; T, sp. 1), *Aucuba* Thunb. (Y, spp. 16; T, spp. 2), *Cornus* L. (= *Swida* Opiz) (Y, spp. 13; T, spp. 2), *Davidia* Baill. (Y, sp. 1), *Dendrobenthamia* Hutch. (Y, spp. 9; T, sp. 1), *Helwingia* Willd. (Y, spp. 4; T, sp. 1), *Macrocarpium* (Spach.) Nakai (Y, sp. 1), *Mastixia* Blume (Y, spp. 2).

Crassulaceae (Y, gen. 7; T, gen. 4): *Bryophyllum* Salisb. (Y, sp. 1; T, sp. 1), *Hylotelephium* H. Ohba (Y, spp. 2; T, sp. 1), *Kalanchoe* Adans. (Y, spp. 2; T, spp. 3), *Rhodiola* L. (Y, spp. 23), *Sedum* L. (Y, spp. 39; T, spp. 14), *Sinocrassula* A. Berger (Y, spp. 5), *Tillaea* L. (Y, spp. 2).

Cruciferae (Y, gen. 31; T, gen. 14): *Aphragmus* Andr. ex DC. (Y, sp. 1), *Arabidopsis* Heynh. (Y, spp. 4), *Arabis* L. (Y, spp. 2; T, spp. 3), *Barbarea* W. T. Aiton (T, spp. 2), *Brassica* L. (Y, spp. 11), *Braya* Sternb. & Hoppe (Y, spp. 2), *Capsella* Medik. (Y, sp. 1; T, sp. 1), *Cardamine* L. (Y, spp. 20; T, spp. 5), *Cheiranthus* L. (Y, spp. 2), *Cochlearia* L. (T, sp. 1), *Coronopus* Zinn (Y, sp. 1; T, spp. 2), *Descurainia* Webb & Berthel. (Y, sp. 1), *Dimorphostemon* Kitag. (Y, spp. 2), *Dipoma* Franch. (Y, sp. 1), *Draba* L. (Y, spp. 20; T, sp. 1), *Erysimum* L. (Y, spp. 6), *Eutrema* R. Br. (Y, spp. 4; T, sp. 1), *Hemilophia* Franch. (Y, sp. 1), *Isatis* L. (Y, spp. 2), *Lepidium* L. (Y, spp. 3; T, sp. 1), *Loxostemon* Hook. f. & Thomson (Y, spp. 6), *Matthiola* W. T. Aiton (Y, sp. 1), *Megacarpaea* DC. (Y, sp. 1), *Nasturtium* W. T. Aiton (Y, sp. 1; T, sp. 1), *Neomartinella* Pilg. (Y, sp. 1), *Neslia* Desv. (T, sp. 1), *Pegaeophyton* Hayek & Hand.-Mazz. (Y, sp. 1), *Raphanus* L. (Y, spp. 2; T, sp. 1), *Rorippa* Scop. (Y, spp. 6; T, spp. 6), *Sisymbrium* L. (Y, spp. 2; T, spp. 2), *Solms-laubachia* Muschl. (Y, spp. 5), *Staintoniella* H. Hara (Y, sp. 1), *Thlaspi* L. (Y, spp. 3), *Yinshania* Ma & Y. Z. Zhao (Y, sp. 1).

Crypteroniaceae (Y, gen. 1): *Crypteronia* Blume (Y, sp. 1).

Cucurbitaceae (Y, gen. 25; T, gen. 13): *Actinostemma* Griff. (Y, sp. 1; T, sp. 1), *Benincasa* Savi (Y, sp. 1), *Biswarea* Cogn. (Y, sp. 1), *Bolbostemma* Franquet (Y, sp. 1), *Coccinia* Wight & Arn. (Y, sp. 1; T, sp. 1), *Cucumis* L. (Y, spp. 3), *Diplocyclos* (Endl.) T. Post & Kuntze (T, sp. 1), *Gomphogyne* Griff. (Y, sp. 1), *Gymnopetalum* Arn. (Y, spp. 2; T, sp. 1), *Gynostemma* Blume (Y, spp. 8; T, sp. 1), *Hemsleya* Cogn. (Y, spp. 20), *Herpetospermum* Wall. (Y, sp. 1), *Hodgsonia* Hook. f. & Thomson (Y, sp. 1), *Lagenaria* Ser. (Y, sp. 1), *Luffa* Mill. (Y, spp. 2), *Momordica* L. (Y, spp. 4; T, spp. 2), *Mukia* Arn. (Y, spp. 2; T, sp. 1), *Nealsomitra* Hutch. (Y, sp. 1; T, sp. 1), *Schizopepon* Maxim. (Y, spp. 2), *Sicyos* L. (Y, sp. 1), *Siraitia* Merr. (Y, spp. 2; T, sp. 1), *Solena* Lour. (Y, spp. 2; T, sp. 1), *Thladiantha* Bunge (Y, spp. 9; T, spp. 2), *Trichosanthes* L. (Y, spp. 26; T, spp. 6), *Zanonia* L. (Y, sp. 1), *Zehneria* Endl. (Y, spp. 5; T, spp. 3).

Cupressaceae (Y, gen. 6; T, gen. 3): *Calocedrus* Kurz (Y, sp. 1; T, sp. 1), *Chamaecyparis* Spach. (Y, spp. 3; T, sp. 1), *Cupressus* L. (Y, spp. 3), *Fokienia* A. Henry & H. H. Thomas (Y, sp. 1), *Juniperus* L. (Y, sp. 1; T, spp. 2), *Platycladus* Spach (Y, sp. 1).

Cycadaceae (Y, gen. 1; T, gen. 1): *Cycas* L. (Y, spp. 10; T, sp. 1).

Cyperaceae (Y, gen. 26; T, gen. 25): *Actinoscirpus* (Ohwi) R. W. Haines & Lye (T, sp. 1), *Blysmus* Panz. (Y, sp. 1), *Bolboschoenus* Palla (Y, sp. 1; T, sp. 1), *Bulbostylis* Kunth (Y, spp. 2; T, spp. 2), *Carex* L. (Y, spp. 134; T, spp. 57), *Cladium* P. Browne (Y, sp. 1; T, sp. 1), *Courtoisina* Sojak (Y, sp. 1), *Cyperus* L. (Y, spp. 20; T, spp. 22), *Diplacrum* R.

- Br. (T, sp. 1), *Eleocharis* R. Br. (Y, spp. 10; T, spp. 7), *Eriophorum* L. (Y, sp. 1), *Fimbristylis* Vahl (Y, spp. 23; T, spp. 23), *Fuirena* Rottb. (Y, spp. 3; T, spp. 2), *Gahnia* J. R. (Y, sp. 1; T, sp. 1), *Hypolytrum* Rich. (Y, sp. 1; T, sp. 1), *Isolepis* R. Br. (Y, sp. 1), *Juncellus* (Griseb.) C. B. Clarke (Y, sp. 1), *Kobresia* Willd. (Y, spp. 27), *Kyllinga* Rottb. (Y, spp. 4; T, spp. 2), *Lepironia* Rich. (T, sp. 1), *Lipocarpus* R. Br. (Y, spp. 3; T, spp. 2), *Mariscus* Vahl (Y, spp. 4; T, spp. 5), *Pycnus* P. Beauv. (Y, spp. 6; T, spp. 6), *Remirea* Aubl. (T, sp. 1), *Rhynchospora* Vahl (Y, spp. 3; T, spp. 5), *Schoenoplectus* (Reichb.) Palla (Y, spp. 9; T, spp. 5), *Schoenus* L. (Y, sp. 1; T, spp. 2), *Scirpus* L. (Y, spp. 2; T, sp. 1), *Scleria* P. J. Bergius (Y, spp. 12; T, spp. 8), *Thoracostachyum* Kurz (Y, sp. 1), *Torulinum* Desv. (T, sp. 1), *Trichophorum* Pers. (T, sp. 1).
- Daphniphyllaceae** (Y, gen. 2; T, gen. 1): *Daphniphyllum* Blume (Y, spp. 6; T, spp. 2), *Dichapetalum* Thouars (Y, sp. 1).
- Diapensiaceae** (Y, gen. 3; T, gen. 1): *Berneuxia* Decne. (Y, sp. 1), *Diapensia* L. (Y, spp. 3), *Shortia* Torr. & A. Gray (Y, sp. 1; T, sp. 1).
- Dilleniaceae** (Y, gen. 2): *Dillenia* L. (Y, spp. 3), *Tetracera* L. (Y, sp. 1).
- Dioscoreaceae** (Y, 1 gen.; T, 1 gen.): *Dioscorea* L. (Y, spp. 38; T, spp. 13).
- Dipentodontaceae** (Y, gen. 1): *Dipentodon* Dunn (Y, sp. 1).
- Dipterocarpaceae** (Y, gen. 5): *Dipterocarpus* C. F. Gaertn. (Y, spp. 3), *Hopea* Roxb. (Y, sp. 1), *Parashorea* Kurz (Y, sp. 1), *Shorea* Roxb. (Y, sp. 1), *Vatica* L. (Y, sp. 1).
- Droseraceae** (Y, gen. 1; T, gen. 1): *Drosera* L. (Y, spp. 2; T, spp. 4).
- Ebenaceae** (Y, gen. 1; T, gen. 1): *Diospyros* L. (Y, spp. 22; T, spp. 10).
- Elaeagnaceae** (Y, gen. 2; T, gen. 1): *Elaeagnus* L. (Y, spp. 27; T, spp. 9), *Hippophae* L. (Y, sp. 1).
- Elaeocarpaceae** (Y, gen. 2; T, gen. 2): *Elaeocarpus* L. (Y, spp. 32; T, spp. 4), *Sloanea* L. (Y, spp. 10; T, sp. 1).
- Elatinaceae** (Y, gen. 2; T, gen. 2): *Bergia* L. (Y, sp. 1; T, sp. 1), *Elatine* L. (Y, spp. 2; T, sp. 1).
- Ephedraceae** (Y, gen. 1): *Ephedra* L. (Y, sp. 1).
- Ericaceae** (Y, gen. 19; T, gen. 11): *Agapetes* D. Don ex G. Don (Y, spp. 20), *Arctous* Niedenzu (Y, sp. 1), *Cassiope* D. Don (Y, spp. 9), *Cheilotheca* Hook. f. (Y, spp. 2; T, spp. 2), *Chimaphila* Pursh (Y, sp. 1; T, spp. 2), *Craibiodendron* W. W. Sm. (Y, spp. 4), *Diplarche* Hook. f. & Thomson (Y, spp. 2), *Enkianthus* Lour. (Y, spp. 6; T, sp. 1), *Eremotropa* Andres (Y, spp. 2), *Gaultheria* Kalm ex L. (Y, spp. 18; T, spp. 2), *Leucothoe* D. Don (Y, spp. 2), *Lyonia* Nutt. (Y, spp. 6; T, sp. 1), *Moneses* Salisb. (Y, sp. 1; T, sp. 1), *Monotropa* L. (Y, spp. 2; T, spp. 2), *Orthilia* Raf. (Y, sp. 1), *Pieris* D. Don (Y, sp. 1; T, spp. 2), *Pyrola* L. (Y, spp. 7; T, spp. 3), *Rhododendron* L. (Y, spp. 230; T, spp. 14), *Vaccinium* L. (Y, spp. 45; T, spp. 6).
- Eriocaulaceae** (Y, gen. 1; T, gen. 1): *Eriocaulon* L. (Y, spp. 15; T, spp. 7).
- Erythroxylaceae** (Y, gen. 1): *Erythroxylum* P. Browne (Y, spp. 2).
- Escalloniaceae** (Y, gen. 1): *Polyosma* Blume (Y, sp. 1).
- Eucommiaceae** (Y, gen. 1): *Eucommia* Oliv. (Y, sp. 1).
- Euphorbiaceae** (Y, gen. 48; T, gen. 25): *Acalypha* L. (Y, spp. 7; T, spp. 10), *Actephila* Blume (Y, spp. 2), *Alchornea* Sw. (Y, spp. 6), *Aleurites* J. R. Forst. & G. Forst. (Y, sp. 1), *Andrachne* L. (Y, spp. 6), *Antidesma* L. (Y, spp. 12; T, sp. 1), *Aporosa* Blume (Y, spp. 4), *Baccaurea* Lour. (Y, spp. 2), *Baliospermum* Blume (Y, spp. 3), *Bischofia* Blume (Y, sp. 1; T, sp. 1), *Breynia* J. R. Forst. & G. Forst. (Y, spp. 5; T, sp. 1), *Bridelia* Willd. (Y, spp. 8; T, spp. 2), *Chaetocarpus* Thwaites (Y, sp. 1), *Chamaesyce* Gray (T, spp. 14), *Claoxylon* A. Juss. (Y, spp. 3; T, sp. 1), *Cleidiocarpon* Airy-Shaw (Y, sp. 1), *Cleidion* Blume (Y, spp. 3), *Cleistanthus* Hook. f. (Y, spp. 3), *Cnesmone* Blume (Y, sp. 1), *Croton* L. (Y, spp. 13; T, spp. 2), *Dalechampia* L. (Y, sp. 1), *Deutzianthus* Gagnep. (Y, sp. 1), *Drypetes* Vahl (Y, spp. 8; T, spp. 2), *Endospermum* Benth. (Y, sp. 1), *Epiprinus* Griff. (Y, sp. 1), *Euphorbia* L. (Y, spp. 30; T, spp. 8), *Excoecaria* L. (Y, spp. 2; T, spp. 3), *Flueggea* Willd. (Y, spp. 4; T, spp. 2), *Glochidion* J. R. Forst. & G. Forst. (Y, spp. 15; T, spp. 5), *Homonoia* Lour. (Y, sp. 1; T, sp. 1), *Jatropha* L. (Y, sp. 1), *Lasiococca* Hook. f. (Y, sp. 1), *Liodendron* H. Keng (T, sp. 1), *Macaranga* Thouars (Y, spp. 7; T, spp. 2), *Mallotus* Lour. (Y, spp. 16; T, spp. 5), *Margaritaria* L. f. (T, sp. 1), *Megistostigma* Hook. f. (Y, sp. 1), *Melanolepis* Rehb. (T, sp. 1), *Mercurialis* L. (Y, sp. 1; T, sp. 1), *Ostodes* Blume (Y, spp. 2), *Phyllanthodendron* Hemsl. (Y, spp. 4), *Phyllanthus* L. (Y, spp. 19; T, spp. 9), *Ricinus* L. (Y, sp. 1; T, sp. 1), *Sapium* Jacq. (Y, spp. 5; T, spp. 2), *Sauropus* Blume (Y, spp. 10), *Speranskia* Baill. (Y, spp. 2), *Strophoblachia* Boerl. (Y, sp. 1), *Sumbaviopsis* J. J. Sm. (Y, sp. 1), *Suregada* Roxb. (Y, sp. 1; T, sp. 1), *Synostemon* F. Muell. (T, sp. 1), *Trewia* L. (Y, sp. 1), *Trigonostemon* Blume (Y, spp. 4), *Vernicia* Lour. (Y, spp. 2).
- Eupteleaceae** (Y, gen. 1): *Euptelea* Sieb. & Zucc. (Y, sp. 1).
- Fabaceae** (Y, gen. 114; T, gen. 67): *Abarema* Pittier (Y, spp. 5), *Abrus* Adans. (Y, spp. 2; T, sp. 1), *Acacia* Mill. (Y, spp. 16; T, spp. 3), *Acrocarpus* Wight (Y, sp. 1), *Adenanthura* L. (Y, sp. 1), *Aeschynomene* L. (Y, sp. 1; T, spp. 2), *Afgekia* Craib (Y, sp. 1), *Albizia* Durazz. (Y, spp. 13; T, spp. 5), *Alysicarpus* Neck. (Y, spp. 5; T, spp. 4), *Amphicarpacea* Elliot (Y, spp. 3), *Antheroporum* Gagnep. (Y, spp. 2), *Apios* Fabr. (Y, spp. 4; T, sp. 1), *Archidendron* F. Muell. (T, sp. 1), *Astragalus* L. (Y, spp. 50; T, spp. 3), *Bauhinia* L. (Y, spp. 30; T, spp. 3), *Bowringia* Champ. (Y, sp. 1), *Butea* Roxb. (Y, spp. 2), *Caesalpinia* L. (Y, spp. 13; T, spp. 4), *Cajanus* Adans. (Y, spp. 7; T, spp. 2), *Callerya* Endl. (Y, spp. 9; T, spp. 2), *Calliandra* Benth. (Y, sp. 1), *Campylotropis* Bunge (Y, spp. 23; T, sp. 1), *Canavalia* Adans. (Y, spp. 3; T, spp. 4), *Caragana* Fabr. (Y, spp. 4), *Cassia* L. (Y, spp. 16), *Cercis* L. (Y, spp. 3), *Chamaecrista* Moench (T, spp. 3), *Chesneya* Lindl. ex Endl. (Y, spp. 3), *Christia* Moench (Y, spp. 2; T, spp. 2), *Cladrastis* Raf. (Y, spp. 3), *Clitoria* L. (Y, spp. 2; T, spp. 2), *Cochlianthus* Benth. (Y, spp. 2), *Codariocalyx* Hassk. (Y, spp. 2; T, sp. 1), *Colutea* L. (Y, sp. 1), *Craspedolobium* Harms (Y, sp. 1), *Crotalaria* L. (Y, spp. 25; T, spp. 19), *Cylindrokelupha* Kosterm. (Y, spp. 8), *Dalbergia* L. f. (Y, spp. 14; T, spp. 2), *Dendrolobium* (Wight & Arn.) Benth. (Y, sp. 1; T, spp. 3), *Derris* Lour. (Y, spp. 13; T, spp. 3), *Desmodium* Desv. (Y, spp. 30; T, spp. 15), *Dolichos* L. (Y, spp. 2), *Dumasia* DC. (Y, spp. 7; T, sp. 1), *Dunbaria* Wight & Arn. (Y, spp. 4; T, spp. 3), *Dysolobium* (Benth.) Prain (Y, sp. 1; T, sp. 1), *Entada* Adans. (Y, sp. 1; T, spp. 3), *Eriosema* (DC.) G. Don (Y, spp. 2; T, sp. 1), *Erythrina* L. (Y, spp. 7; T, sp. 1), *Erythrophleum* Afzel. (Y, sp. 1), *Euchresta* Benn. (Y, sp. 1; T, sp. 1), *Flemingia* Roxb. (Y, spp. 17; T, spp. 3), *Fordia* Hemsl. (Y, spp. 2), *Galactia* P. Browne (Y, spp. 2; T, spp. 2), *Gleditsia* L. (Y, spp. 2; T, sp. 1), *Glycine* Willd. (Y, spp. 2; T, spp. 3), *Glycyrrhiza* L. (Y, sp. 1), *Gueldenstaedtia* Fisch. (Y, spp. 3), *Gymnocladus* Lam. (Y, sp. 1), *Hedysarum* L. (Y, spp. 9), *Hylodesmum* H. Ohashi & R. R. Mill (Y, spp. 10; T, spp. 4), *Indigofera* L. (Y, spp. 48; T, spp. 15), *Kummerowia* Schindl. (Y, sp. 1; T, spp. 2), *Lablab* Adans. (Y, sp. 1; T, sp. 1), *Lathyrus* L. (Y, spp. 3), *Lespedeza* Michx. (Y, spp. 8; T, spp. 4), *Leucaena* Benth. (Y, sp. 1; T, sp. 1), *Lotus* L. (Y, sp. 1; T, sp. 1), *Lysidice*

- Hance (Y, sp. 1), *Maackia* Rupr. (T, sp. 1), *Macrotyloma* (Wight & Arn.) Verdc. (T, sp. 1), *Mecopus* Benn. (Y, sp. 1), *Medicago* L. (Y, spp. 2; T, spp. 3), *Melilotus* Mill. (Y, spp. 3; T, spp. 2), *Millettia* Wight & Arn. (Y, spp. 10; T, spp. 2), *Mimosa* L. (Y, spp. 2; T, spp. 3), *Mucuna* Adans. (Y, spp. 9; T, spp. 2), *Nogra* Merr. (Y, sp. 1), *Ohwia* H. Ohashi (T, sp. 1), *Ormocarpum* P. Beauv. (T, sp. 1), *Ormosia* Jacks. (Y, spp. 15; T, spp. 2), *Oxytropis* DC. (Y, spp. 3), *Parkia* R. Br. (Y, sp. 1), *Parochetus* Buch.-Ham. (Y, sp. 1), *Peltophorum* (Vogel) Benth. (Y, sp. 1), *Phaseolus* L. (Y, spp. 3), *Phylacium* Benn. (Y, sp. 1), *Phyllodium* Desv. (Y, spp. 4; T, sp. 1), *Piptanthus* (Hook.) D. Don (Y, spp. 2), *Pisum* L. (Y, sp. 1), *Pithecellobium* Mart. (Y, sp. 1), *Priotropis* Wight & Arn. (Y, sp. 1), *Psophocarpus* Neck. ex DC. (Y, sp. 1), *Pterocarpus* Jacq. (Y, spp. 2), *Pterolobium* R. Br. (Y, spp. 2), *Pueraria* DC. (Y, spp. 8; T, spp. 2), *Pycnospora* R. Br. (Y, sp. 1; T, sp. 1), *Rhynchosia* Lour. (Y, spp. 10; T, spp. 3), *Robinia* L. (Y, sp. 1), *Saraca* L. (Y, spp. 2), *Senna* Mill. (T, spp. 4), *Sesbania* Scop. (Y, spp. 3; T, spp. 2), *Shuteria* Wight & Arn. (Y, spp. 2), *Sindora* Miq. (Y, sp. 1), *Sinodolichos* Verdc. (Y, sp. 1), *Smithia* Aiton (Y, spp. 3; T, spp. 2), *Sophora* L. (Y, spp. 14; T, spp. 2), *Spatholobus* Hassk. (Y, spp. 8), *Tadehagi* H. Ohashi (Y, spp. 2), *Tamarindus* L. (Y, sp. 1), *Tephrosia* Pers. (Y, spp. 4; T, spp. 4), *Teramnus* P. Browne (T, sp. 1), *Thermopsis* R. Br. (Y, spp. 4), *Tibetia* (Ali) H. P. Tsui (Y, spp. 4), *Trifolium* L. (Y, spp. 2; T, spp. 3), *Trigonella* L. (Y, sp. 1; T, sp. 1), *Uraria* Desv. (Y, spp. 7; T, spp. 4), *Urariopsis* Schindl. (Y, spp. 2), *Vicia* L. (Y, spp. 15; T, spp. 3), *Vigna* Savi (Y, spp. 7; T, spp. 8), *Wisteria* Nutt. (Y, spp. 3), *Zenia* Chun (Y, sp. 1), *Zornia* J. F. Gmel. (Y, sp. 1; T, spp. 2).
- Fagaceae** (Y, gen. 7; T, gen. 8): *Castanea* Mill. (Y, spp. 3; T, spp. 2), *Castanopsis* (D. Don) Spach (Y, spp. 34; T, spp. 7), *Cyclobalanopsis* Oersted (Y, spp. 30; T, spp. 14), *Fagus* L. (Y, spp. 2; T, sp. 1), *Limlia* Masam. & Tomiya (T, sp. 1), *Lithocarpus* Blume (Y, spp. 44; T, spp. 2), *Pasania* Oerst. (T, spp. 12), *Quercus* L. (Y, spp. 28; T, spp. 9), *Trigonobalanus* Forman (Y, sp. 1).
- Flacourtiaceae** (Y, gen. 9; T, gen. 4): *Bennettiodendron* Merr. (Y, spp. 2), *Carrierea* Franch. (Y, spp. 2), *Flacourtia* Comm. (Y, spp. 4; T, sp. 1), *Gynocardia* R. Br. (Y, sp. 1), *Hydnocarpus* Gaertn. (Y, spp. 4), *Idesia* Maxim. (Y, sp. 1; T, sp. 1), *Itoa* Hemsl. (Y, sp. 1), *Scolopia* Schreb. (Y, sp. 1; T, sp. 1), *Xylosma* G. Forst. (Y, spp. 3; T, sp. 1).
- Flagellariaceae** (T, gen. 1): *Flagellaria* L. (T, sp. 1).
- Fumariaceae** (Y, gen. 4; T, gen. 2): *Corydalis* DC. (Y, spp. 72; T, spp. 8), *Dactylicapnos* Wall. (Y, spp. 4), *Dicentra* Borkh. (Y, spp. 2), *Fumaria* L. (T, sp. 1), *Hypecoum* L. (Y, sp. 1).
- Gentianaceae** (Y, gen. 17; T, gen. 6): *Canscora* Lam. (Y, sp. 1), *Centaurium* Hill (T, sp. 1), *Comastoma* (Wettst.) Toyokuni (Y, spp. 6), *Cotylanthera* Blume (Y, sp. 1), *Crawfurdia* Wall. (Y, spp. 8), *Exacum* L. (Y, spp. 2), *Gentiana* L. (Y, spp. 119; T, spp. 10), *Gentianella* Moench (Y, spp. 3), *Gentianopsis* Ma (Y, spp. 5), *Halenia* Borkh. (Y, sp. 1), *Latouchea* Franch. (Y, sp. 1), *Lomatogonium* A. Braun (Y, spp. 8; T, sp. 1), *Megacodon* (Hemsl.) Harry Sm. (Y, sp. 1), *Pterygocalyx* Maxim. (Y, sp. 1; T, sp. 1), *Sebaea* Sol. (Y, sp. 1), *Swertia* L. (Y, spp. 35; T, spp. 4), *Tripterispermum* Blume (Y, spp. 8; T, spp. 6), *Veratrilla* Baill. ex Franch. (Y, sp. 1).
- Geraniaceae** (Y, gen. 1; T, gen. 2): *Erodium* L'Hér. (T, spp. 2), *Geranium* L. (Y, spp. 29; T, spp. 5).
- Gesneriaceae** (Y, gen. 30; T, gen. 11): *Aeschynanthus* Jack (Y, spp. 31; T, sp. 1), *Ancylostemon* Craib (Y, spp. 6), *Anna* Pellegr. (Y, sp. 1), *Beccarinda* Kuntze (Y, spp. 5), *Boea* Comm. ex Lam. (Y, sp. 1), *Boeica* T. Anderson (Y, spp. 2), *Briggsia* Craib (Y, spp. 8), *Calcareoboea* C. Y. Wu (Y, sp. 1), *Chirita* Buch.-Ham. (Y, spp. 15; T, sp. 1), *Conandron* Sieb. & Zucc. (T, sp. 1), *Corallodiscus* Batalin (Y, spp. 11), *Cyrtandra* J. R. Forst. & G. Forst. (T, sp. 1), *Didissandra* C. B. Clarke (Y, spp. 2), *Didymocarpus* Wall. (Y, spp. 15), *Epithema* Blume (Y, sp. 1; T, sp. 1), *Hemiboea* C. B. Clarke (Y, spp. 8; T, sp. 1), *Hemiboeopsis* W. T. Wang (Y, sp. 1), *Lagarosolen* W. T. Wang (Y, sp. 1), *Leptoboea* Benth. (Y, sp. 1), *Loxostigma* C. B. Clarke (Y, spp. 7), *Lysionotus* D. Don (Y, spp. 17; T, sp. 1), *Oreocharis* Benth. (Y, spp. 14), *Ornithoboea* Parish (Y, spp. 4), *Paraboea* (C. B. Clarke) Ridl. (Y, spp. 5; T, sp. 1), *Petrocosmea* Oliv. (Y, spp. 20), *Rhabdothamnopsis* Hemsl. (Y, sp. 1), *Rhynchoglossum* Blume (Y, sp. 1), *Rhynchotechum* Blume (Y, spp. 3; T, spp. 4), *Stauranthera* Benth. (Y, spp. 2), *Titanotrichum* Soler. (T, sp. 1), *Tremacron* Craib (Y, spp. 4), *Trisepalum* C. B. Clarke (Y, sp. 1), *Whytockia* W. W. Sm. (Y, spp. 5; T, sp. 1).
- Ginkgoaceae** (Y, gen. 1): *Ginkgo* L. (Y, sp. 1).
- Gnetaceae** (Y, gen. 1): *Gnetum* L. (Y, spp. 4).
- Goodeniaceae** (T, gen. 1): *Scaevola* L. (T, spp. 2).
- Grossulariaceae** (Y, gen. 1; T, gen. 1): *Ribes* L. (Y, spp. 16; T, sp. 1).
- Haloragaceae** (Y, gen. 2; T, gen. 2): *Haloragis* J. R. Forst. & G. Forst. (Y, spp. 2; T, sp. 1), *Myriophyllum* L. (Y, spp. 2; T, spp. 4).
- Hamamelidaceae** (Y, gen. 11; T, gen. 6): *Altingia* Noronha (Y, spp. 4), *Corylopsis* Sieb. & Zucc. (Y, spp. 9; T, spp. 2), *Distyliopsis* Endress (Y, spp. 3; T, sp. 1), *Distylium* Sieb. & Zucc. (Y, spp. 4; T, spp. 2), *Eustigma* Gardn. & Champ. (Y, spp. 2; T, sp. 1), *Liquidambar* L. (Y, sp. 1; T, sp. 1), *Loropetalum* R. Br. ex Rehb. (Y, spp. 2), *Mytilaria* Lecomte (Y, sp. 1), *Rhodoleia* Champ. (Y, spp. 3), *Sycopsis* Oliv. (Y, spp. 2; T, sp. 1), *Exbucklandia* R. W. Brown (Y, spp. 2).
- Hernandiaceae** (Y, gen. 1; T, gen. 2): *Hernandia* L. (T, sp. 1), *Illigera* Blume (Y, spp. 11; T, sp. 1).
- Hippocastanaceae** (Y, gen. 1): *Aesculus* L. (Y, spp. 5).
- Hydrangeaceae** (Y, gen. 6; T, gen. 4): *Deutzia* Thunb. (Y, spp. 21; T, spp. 3), *Dichroa* Lour. (Y, spp. 4), *Hydrangea* L. (Y, spp. 18; T, spp. 7), *Philadelphus* L. (Y, spp. 10), *Pileostegia* Hook. f. & Thomson (Y, sp. 1; T, sp. 1), *Schizophragma* Sieb. & Zucc. (Y, spp. 4; T, sp. 1).
- Hydrocharitaceae** (Y, gen. 6; T, gen. 8): *Blyxa* Noronha (Y, spp. 4; T, spp. 3), *Halophila* Thouars (T, spp. 3), *Hydrilla* Rich. (Y, sp. 1; T, sp. 1), *Hydrocharis* L. (Y, sp. 1; T, sp. 1), *Najas* L. (Y, spp. 4; T, spp. 7), *Ottelia* Pers. (Y, spp. 2; T, sp. 1), *Thalassia* Banks (T, sp. 1), *Vallisneria* L. (Y, sp. 1; T, sp. 1).
- Hydrophyllaceae** (Y, gen. 1; T, gen. 1): *Hydrolea* L. (Y, sp. 1; T, sp. 1).
- Hypericaceae** (Y, gen. 3; T, gen. 2): *Cratoxylum* Blume (Y, spp. 2), *Hypericum* L. (Y, spp. 27; T, spp. 14), *Triadenum* Raf. (Y, sp. 1; T, sp. 1).
- Hypoxidaceae** (Y, gen. 2; T, gen. 3): *Curculigo* Gaertn. (Y, spp. 4; T, spp. 2), *Hypoxis* L. (Y, sp. 1; T, sp. 1), *Molineria* Colla (T, sp. 1).
- Icacinaceae** (Y, gen. 10; T, gen. 3): *Apodytes* E. Mey. (Y, sp. 1), *Gomphandra* Wall. (Y, spp. 2; T, sp. 1), *Gonocaryum* Miq. (Y, sp. 1; T, sp. 1), *Iodes* Blume (Y, spp. 4), *Mappianthus* Hand.-Mazz. (Y, sp. 1), *Natsiatopsis* Kurz (Y, sp. 1), *Natsiatum* Buch.-Ham. (Y, sp. 1), *Nothapodytes* Blume (Y, spp. 3; T, sp. 1), *Pittosporopsis* Craib (Y, sp. 1), *Platea* Blume (Y, sp. 1).
- Iridaceae** (Y, gen. 4; T, gen. 3): *Belamcanda* Adans. (Y, sp. 1; T, sp. 1), *Crocus* L. (Y, sp. 1), *Iris* L. (Y, spp. 23; T, spp. 2), *Sisyrinchium* L. (Y, sp. 1; T, spp. 2).
- Iteaceae** (Y, gen. 1; T, gen. 1): *Itea* L. (Y, spp. 7; T, spp. 2).

Ixonanthaceae (Y, gen. 1): *Ixonanthes* Jack (Y, spp. 2).

Juglandaceae (Y, gen. 8; T, gen. 3): *Annamocarya* A. Chev. (Y, sp. 1), *Carya* Nutt. (Y, sp. 1), *Cyclocarya* Iljinsk. (Y, sp. 1), *Engelhardtia* Leschen. (Y, spp. 5; T, sp. 1), *Juglans* L. (Y, spp. 4; T, sp. 1), *Platycarya* Sieb. & Zucc. (Y, spp. 2; T, sp. 1), *Pterocarya* Kunth (Y, spp. 3), *Rhoiptelea* Diels & Handl.-Mazz. (Y, sp. 1).

Juncaceae (Y, gen. 2; T, gen. 2): *Juncus* L. (Y, spp. 51; T, spp. 5), *Luzula* DC. (Y, spp. 7; T, spp. 4).

Juncaginaceae (Y, gen. 1): *Triglochin* L. (Y, spp. 2).

Lamiaceae (Y, gen. 78; T, gen. 41): *Acrocephalus* Benth. (Y, sp. 1; T, sp. 1), *Agastache* J. Clayton. (Y, sp. 1; T, sp. 1), *Ajuga* L. (Y, spp. 12; T, spp. 5), *Amethystea* L. (Y, sp. 1), *Anisochilus* Wall. (Y, sp. 1), *Anisomeles* R. Br. (T, sp. 1), *Basilicum* Moench (T, sp. 1), *Bostrychanthera* Benth. (T, sp. 1), *Callicarpa* L. (Y, spp. 14; T, spp. 9), *Cardioteucris* C. Y. Wu (Y, sp. 1), *Caryopteris* Bunge (Y, spp. 9; T, sp. 1), *Ceratanthus* F. Muell. (Y, sp. 1), *Chelonopsis* Miq. (Y, spp. 8), *Clerodendranthus* Kudô (Y, sp. 1), *Clerodendrum* L. (Y, spp. 25; T, spp. 7), *Clinopodium* L. (Y, spp. 6; T, spp. 3), *Colebrookea* Sm. (Y, sp. 1), *Coleus* Lour. (Y, spp. 5; T, spp. 2), *Colquhounia* Wall. (Y, spp. 5), *Comanthosphace* S. Moore (T, sp. 1), *Congea* Roxb. (Y, spp. 2), *Craniotome* Rchb. (Y, sp. 1), *Dracocephalum* L. (Y, spp. 8), *Dysophylla* Blume (Y, spp. 5), *Elsholtzia* Willd. (Y, spp. 26; T, spp. 2), *Epimeredi* Adans. (Y, sp. 1), *Eriophyton* Benth. (Y, sp. 1), *Eurysolen* Prain (Y, sp. 1), *Galeopsis* L. (Y, sp. 1), *Garrettia* H. R. Fletcher (Y, sp. 1), *Geniosporum* Wall. (Y, sp. 1), *Glechoma* L. (Y, spp. 2), *Gmelina* L. (Y, spp. 3), *Gomphostemma* Wall. (Y, spp. 10; T, sp. 1), *Hanceola* Kudô (Y, spp. 2), *Heterolamium* C. Y. Wu (Y, sp. 1), *Holocheila* (Kudo) S. Chow ex C. Y. Wu & S. Ch (Y, sp. 1), *Hyptis* Jacq. (T, spp. 4), *Isodon* (Schrud.) Spach (T, spp. 3), *Keiskea* Miq. (Y, sp. 1; T, sp. 1), *Kinostemon* Kudô (Y, sp. 1), *Lagopsis* Bunge (Y, sp. 1), *Lamiophlomis* Kudô (Y, sp. 1), *Lamium* L. (Y, sp. 1; T, spp. 2), *Leonurus* L. (Y, sp. 1; T, sp. 1), *Leucas* R. Br. (Y, spp. 4; T, sp. 1), *Leucosceptrum* Sm. (Y, sp. 1), *Loxocalyx* Hemsl. (Y, sp. 1), *Lycopus* L. (Y, spp. 2; T, sp. 1), *Maesa* Forssk. (Y, spp. 19; T, spp. 3), *Meehania* Britt. (Y, sp. 1), *Melissa* L. (Y, spp. 2; T, sp. 1), *Mentha* L. (Y, spp. 4; T, sp. 1), *Mesona* Blume (Y, sp. 1; T, sp. 1), *Micromeria* Benth. (Y, spp. 3), *Microtoena* Prain (Y, spp. 10), *Mosla* (Benth.) Buch.-Ham. (Y, spp. 2; T, spp. 3), *Nepeta* L. (Y, spp. 8), *Notochaete* Benth. (Y, spp. 2), *Ocimum* L. (Y, spp. 3; T, spp. 3), *Origanum* L. (Y, sp. 1; T, sp. 1), *Orthosiphon* Benth. (Y, sp. 1; T, sp. 1), *Paralamium* Dunn (Y, sp. 1), *Paraphlomis* Prain (Y, spp. 4; T, spp. 3), *Perilla* L. (Y, sp. 1; T, sp. 1), *Phlomis* L. (Y, spp. 16), *Phyllophyton* Kudô (Y, sp. 1), *Pogostemon* Desf. (Y, spp. 12; T, spp. 3), *Premna* L. (Y, spp. 27; T, spp. 5), *Prunella* L. (Y, spp. 2), *Rabdosia* (Blume) Hasskarl (Y, spp. 47), *Rostrinucula* Kudô (Y, sp. 1), *Rubiteucris* Kudô (Y, sp. 1; T, sp. 1), *Salvia* L. (Y, spp. 37; T, spp. 9), *Schizonepeta* Briq. (Y, sp. 1), *Schnabelia* Handl.-Mazz. (Y, sp. 1), *Scutellaria* L. (Y, spp. 33; T, spp. 6), *Siphocranion* Kudô (Y, spp. 2), *Skapanthus* C. Y. Wu & H. W. Li (Y, sp. 1), *Sphenodesme* Jack (Y, spp. 2; T, sp. 1), *Stachys* L. (Y, spp. 5; T, spp. 2), *Suzukia* Kudô (T, spp. 2), *Symphorema* Roxb. (Y, sp. 1), *Teucrium* L. (Y, spp. 10; T, spp. 3), *Vitex* L. (Y, spp. 10; T, spp. 4).

Lardizabalaceae (Y, gen. 5; T, gen. 2): *Akebia* Decne. (Y, sp. 1; T, sp. 1), *Decaisnea* Hook. f. & Thomson (Y, sp. 1), *Holboellia* Wall. (Y, spp. 5), *Sinofranchetia* Hemsl. (Y, sp. 1), *Stauntonia* DC. (Y, spp. 6; T, spp. 3).

Lauraceae (Y, gen. 16; T, gen. 12): *Actinodaphne* Nees (Y, spp. 7), *Alseodaphne* Nees (Y, spp. 7), *Beilschmiedia* Nees (Y, spp. 17; T, spp. 2), *Caryodaphnopsis* Airy Shaw (Y, spp.

4), *Cassytha* L. (Y, sp. 1; T, sp. 1), *Cinnamomum* Schaeffer (Y, spp. 26; T, spp. 14), *Cryptocarya* R. Br. (Y, spp. 8; T, spp. 3), *Dehaasia* Blume (T, sp. 1), *Endiandra* R. Br. (T, sp. 1), *Lindera* Thunb. (Y, spp. 21; T, spp. 7), *Litsea* Lam. (Y, spp. 43; T, spp. 10), *Machilus* Nees (Y, spp. 23; T, spp. 6), *Neocinnamomum* H. Liou (Y, spp. 4), *Neolitsea* Merr. (Y, spp. 16; T, spp. 10), *Nothaphoebe* Blume (Y, sp. 1), *Phoebe* Nees (Y, spp. 21; T, sp. 1), *Sassafras* T. Nees & C. H. Eberm. (Y, sp. 1; T, sp. 1), *Syndiclis* Hook. f. (Y, spp. 5).

Lecythydaceae (Y, gen. 1; T, gen. 1): *Barringtonia* J. R. Forst. & G. Forst. (Y, spp. 2; T, spp. 2).

Lemnaceae (Y, gen. 3; T, gen. 3): *Lemna* L. (Y, spp. 3; T, spp. 2), *Spirodela* Schleid. (Y, sp. 1; T, spp. 2), *Wolffia* Horkel (Y, sp. 1; T, sp. 1).

Lentibulariaceae (Y, gen. 2; T, gen. 1): *Pinguicula* L. (Y, sp. 1), *Utricularia* L. (Y, spp. 9; T, spp. 8).

Liliaceae (Y, gen. 36; T, gen. 20): *Alettris* L. (Y, spp. 8; T, spp. 2), *Aloe* L. (Y, sp. 1), *Aspidistra* Ker Gawl. (Y, 4 spp.; T, sp. 1), *Barnardia* Lindl. (T, sp. 1), *Campylandra* Baker (T, sp. 1), *Cardiocrinum* (Endl.) Lindl. (Y, sp. 1), *Chlorophytum* Ker-Gawl. (Y, spp. 4), *Clintonia* Raf. (Y, sp. 1), *Dianella* Lam. (Y, sp. 1; T, sp. 1), *Disporopsis* Hance (Y, spp. 4; T, sp. 1), *Disporum* Salisb. (Y, spp. 7; T, spp. 4), *Diurandthera* Hemsl. (Y, sp. 1), *Eremurus* M. Bieb. (Y, sp. 1), *Fritillaria* L. (Y, spp. 4), *Gloriosa* L. (Y, sp. 1), *Helonias* L. (T, sp. 1), *Hemerocallis* L. (Y, spp. 5; T, sp. 1), *Hosta* Tratt. (Y, spp. 2), *Iphigenia* Kunth (Y, sp. 1), *Lilium* L. (Y, spp. 23; T, spp. 2), *Liriope* Lour. (Y, spp. 3; T, spp. 2), *Lloydia* Rchb. (Y, spp. 6), *Maianthemum* F. H. Wigg. (Y, spp. 12), *Nomocharis* Franch. (Y, spp. 7), *Notholirion* Wall. (Y, spp. 3), *Ophiopogon* Ker Gawl. (Y, spp. 33; T, spp. 2), *Peliosanthes* Andrews (Y, spp. 7; T, sp. 1), *Petrosavia* Becc. (Y, sp. 1; T, sp. 1), *Polygonatum* Mill. (Y, spp. 10; T, spp. 2), *Reineckea* Kunth (Y, sp. 1), *Rohdea* Roth (Y, sp. 1), *Scilla* L. (Y, sp. 1; T, sp. 1), *Smilacina* Desf. (T, sp. 1), *Streptopus* Michx. (Y, spp. 3), *Theropogon* Maxim. (Y, sp. 1), *Thysanotus* R. Br. (T, sp. 1), *Tofieldia* Huds. (Y, spp. 2), *Tricyrtis* Wall. (Y, sp. 1; T, spp. 2), *Tupistra* Ker Gawl. (Y, spp. 11), *Veratrum* L. (Y, spp. 6; T, spp. 2), *Ypsilandra* Franch. (Y, spp. 3).

Linaceae (Y, gen. 4): *Anisadenia* Wall. (Y, spp. 2), *Linum* L. (Y, spp. 2), *Reinwardtia* Dumort. (Y, sp. 1), *Tirpitzia* Hallier f. (Y, sp. 1).

Linderniaceae (Y, gen. 2; T, gen. 2): *Lindernia* All. (Y, spp. 14; T, spp. 15), *Torenia* L. (Y, spp. 6; T, spp. 4).

Loganiaceae (Y, gen. 7; T, gen. 6): *Buddleja* L. (Y, spp. 23; T, spp. 2), *Fagraea* Thunb. (Y, sp. 1; T, sp. 1), *Gardneria* Wall. (Y, spp. 6; T, spp. 2), *Gelsemium* Juss. (Y, sp. 1), *Geniostoma* J. R. Forst. & G. Forst. (T, sp. 1), *Mitrasacme* Labill. (Y, sp. 1; T, spp. 2), *Mitreola* L. (Y, spp. 3), *Strychnos* L. (Y, spp. 4; T, sp. 1).

Loranthaceae (Y, gen. 10; T, gen. 4): *Arceuthobium* M. Bieb. (Y, spp. 2), *Dendrophthoe* Mart. (Y, sp. 1), *Elytranthe* (Blume) Blume (Y, spp. 2), *Helixanthera* Lour. (Y, spp. 5), *Korthalsella* Tiegh. (Y, sp. 1; T, sp. 1), *Loranthus* Jacq. (Y, sp. 1; T, spp. 2), *Macrosolen* (Bl.) Reichb. (Y, spp. 2), *Scurrula* L. (Y, spp. 7), *Taxillus* Tiegh. (Y, spp. 9; T, spp. 10), *Viscum* L. (Y, spp. 9; T, spp. 4).

Lythraceae (Y, gen. 7; T, gen. 5): *Ammannia* L. (Y, spp. 3; T, spp. 3), *Lagerstroemia* L. (Y, spp. 7; T, sp. 1), *Lawsonia* L. (Y, sp. 1), *Lythrum* L. (Y, sp. 1), *Pemphis* J. R. Forst. & G. Forst. (T, sp. 1), *Rotala* L. (Y, spp. 5; T, spp. 6), *Trapa* L. (Y, spp. 3; T, sp. 1), *Woodfordia* Salisb. (Y, sp. 1).

Magnoliaceae (Y, gen. 12; T, gen. 2): *Alcimandra* Dandy (Y, sp. 1), *Liriodendron* L. (Y, spp. 2), *Magnolia* L. (Y, spp. 10; T, sp. 1), *Manglietia* Blume (Y, spp. 16), *Manglietiastrum* Y. W. Law (Y, sp. 1), *Michelia* L. (Y, spp. 23; T, sp. 1),

Parakmeria Hu & W. C. Cheng (Y, spp. 2), *Paramichelia* Hu (Y, sp. 1), *Talauma* Juss. (Y, sp. 1), *Tsoongiodendron* Chun (Y, sp. 1), *Woonyoungia* Law (Y, sp. 1), *Yulania* Spach (Y, spp. 6).

Malpighiaceae (Y, gen. 2; T, gen. 3): *Aspidopterys* Juss. (Y, spp. 6), *Hiptage* Gaertn. (Y, spp. 6; T, sp. 1), *Ryssopterys* Blume (T, sp. 1), *Tristellateia* Thouars (T, sp. 1).

Malvaceae (Y, gen. 11; T, gen. 8): *Abelmoschus* Medik. (Y, spp. 5; T, sp. 1), *Abutilon* Mill. (Y, spp. 8; T, spp. 3), *Althaea* L. (Y, sp. 1), *Cenocentrum* Gagnep. (Y, sp. 1), *Hibiscus* L. (Y, spp. 14; T, spp. 5), *Kydia* Roxb. (Y, spp. 3), *Malva* L. (Y, spp. 4; T, spp. 2), *Malvastrum* A. Gray (Y, sp. 1; T, spp. 2), *Sida* L. (Y, spp. 11; T, spp. 7), *Thespesia* Sol. (Y, sp. 1; T, sp. 1), *Urena* L. (Y, spp. 3; T, spp. 2).

Marantaceae (Y, gen. 3; T, gen. 1): *Donax* Lour. (Y, sp. 1; T, sp. 1), *Phrynium* Willd. (Y, spp. 3), *Stachyphrynium* K. Schum (Y, sp. 1).

Martyniaceae (Y, gen. 1): *Martynia* L. (Y, sp. 1).

Melastomataceae (Y, gen. 17; T, gen. 12): *Allomorphia* Blume (Y, spp. 4), *Astronia* Blume (T, sp. 1), *Barthea* Hook. f. (T, sp. 1), *Blastus* Lour. (Y, spp. 4; T, sp. 1), *Bredia* Blume (Y, spp. 5; T, spp. 2), *Cyphotheca* Diels. (Y, sp. 1), *Fordiophyton* Stapf (Y, spp. 4), *Medinilla* Gaudich. (Y, spp. 10; T, spp. 2), *Melastoma* L. (Y, spp. 4; T, spp. 3), *Memecylon* L. (Y, spp. 4; T, sp. 1), *Osbeckia* L. (Y, spp. 10; T, spp. 2), *Otanthera* Blume (T, sp. 1), *Oxyspora* DC. (Y, spp. 3), *Pachycentria* Blume (T, sp. 1), *Phyllagathis* Blume (Y, spp. 6), *Plagiopetalum* Rehder (Y, spp. 3), *Sarcopyramis* Wall. (Y, spp. 3; T, sp. 1), *Sonerila* Roxb. (Y, spp. 7; T, sp. 1), *Sporoxeia* W. W. Sm. (Y, spp. 3), *Stapfiophyton* H. L. Li (Y, sp. 1), *Styrophyton* S. Y. Hu (Y, sp. 1).

Meliaceae (Y, gen. 12; T, gen. 5): *Aglaia* Lour. (Y, spp. 4; T, spp. 3), *Amoora* Roxb. (Y, spp. 7), *Aphanamixis* Blume (Y, spp. 3; T, sp. 1), *Chisocheton* Blume (Y, spp. 2; T, sp. 1), *Chukrasia* A. Juss. (Y, sp. 1), *Cipadessa* Blume (Y, spp. 2), *Dysoxylum* Blume (Y, spp. 10; T, spp. 4), *Melia* L. (Y, spp. 2; T, sp. 1), *Munronia* Wight (Y, spp. 3), *Toona* (Endl.) Roem. (Y, spp. 3), *Trichilia* P. Browne (Y, sp. 1), *Walsura* Roxb. (Y, spp. 2).

Menispermaceae (Y, gen. 16; T, gen. 6): *Albertisia* Becc. (Y, sp. 1), *Aspidocarya* Hook. f. & Thomson (Y, sp. 1), *Cissampelos* L. (Y, sp. 1), *Cocculus* DC. (Y, spp. 2; T, spp. 2), *Cyclea* Arn. (Y, spp. 7; T, spp. 3), *Diploclisia* Miers. (Y, spp. 2), *Eleutharrhena* Forman (Y, sp. 1), *Fibraurea* Lour. (Y, sp. 1), *Hypserpa* Miers (Y, sp. 1), *Parabaena* Miers (Y, sp. 1), *Pericampylus* Miers (Y, sp. 1; T, sp. 1), *Pycnarrhena* Miers (Y, sp. 1), *Sinomenium* Diels (Y, sp. 1; T, sp. 1), *Stephania* Lour. (Y, spp. 17; T, spp. 4), *Tinomiscium* Miers (Y, sp. 1), *Tinospora* Miers (Y, spp. 3; T, sp. 1).

Menyanthaceae (Y, gen. 2; T, gen. 1): *Menyanthes* L. (Y, sp. 1), *Nymphoides* Hill (Y, spp. 2; T, spp. 6).

Mitrastemonaceae (Y, gen. 1; T, gen. 1): *Mitrastemon* Makino (Y, sp. 1; T, spp. 2).

Molluginaceae (Y, gen. 2; T, gen. 2): *Glinus* L. (Y, spp. 2; T, spp. 2), *Mollugo* L. (Y, sp. 1; T, spp. 2).

Moraceae (Y, gen. 8; T, gen. 6): *Antiaris* Lesch. (Y, sp. 1), *Artocarpus* J. R. Forst. & G. Forst. (Y, spp. 12; T, spp. 2), *Broussonetia* L'Hér. (Y, spp. 4; T, spp. 3), *Cudrania* Trécul (Y, spp. 5), *Fatoua* Gaudich. (Y, sp. 1; T, spp. 2), *Ficus* L. (Y, spp. 66; T, spp. 22), *Machura* Nutt. (T, sp. 1), *Morus* L. (Y, spp. 8; T, sp. 1), *Streblus* Lour. (Y, spp. 6).

Musaceae (Y, gen. 3; T, gen. 1): *Ensete* Bruce (Y, sp. 1), *Musa* L. (Y, spp. 8; T, sp. 1), *Musella* (Fr.) C. Y. Wu (Y, sp. 1).

Myricaceae (Y, gen. 1; T, gen. 1): *Myrica* L. (Y, spp. 3; T, spp. 2).

Myristicaceae (Y, gen. 3): *Horsfieldia* Willd. (Y, spp. 4), *Knema* Lour. (Y, spp. 5), *Myristica* Gronov. (Y, sp. 1).

Myrsinaceae (Y, gen. 4; T, gen. 3): *Ardisia* Sw. (Y, spp. 36; T, spp. 15), *Embelia* Burm. f. (Y, spp. 18; T, spp. 2), *Myrsine* L. (Y, spp. 3; T, spp. 3), *Rapanea* Aubl. (Y, spp. 6).

Myrtaceae (Y, gen. 4; T, gen. 4): *Acmena* DC. (T, sp. 1), *Cleistocalyx* Blume (Y, sp. 1), *Decaspermum* J. R. Forst. & G. Forst. (Y, sp. 1; T, sp. 1), *Rhodomyrtus* (DC.) Reichenbach (Y, sp. 1; T, sp. 1), *Syzygium* R. Br. (Y, spp. 34; T, spp. 8).

Nelumbonaceae (Y, gen. 1; T, gen. 1): *Nelumbo* Adans. (Y, sp. 1; T, sp. 1).

Nyctaginaceae (Y, gen. 3; T, gen. 2): *Boerhavia* L. (Y, sp. 1; T, sp. 1), *Commicarpus* Standl. (Y, sp. 1), *Pisonia* L. (Y, sp. 1; T, spp. 2).

Nymphaeaceae (Y, gen. 2; T, gen. 3): *Euryale* Salisb. (T, sp. 1), *Nuphar* Sm. (Y, spp. 2; T, sp. 1), *Nymphaea* L. (Y, spp. 4; T, spp. 2).

Nyssaceae (Y, gen. 2): *Camptotheca* Decne. (Y, sp. 1), *Nyssa* Gronov. (Y, spp. 4).

Olacaceae (Y, gen. 2; T, gen. 1): *Malania* Chun & S. K. Lee (Y, sp. 1), *Olax* L. (Y, sp. 1; T, sp. 1).

Oleaceae (Y, gen. 11; T, gen. 5): *Chionanthus* L. (Y, sp. 1; T, spp. 3), *Erythralum* Blume (Y, sp. 1), *Fontanesia* Labill. (Y, sp. 1), *Forsythia* Vahl (Y, spp. 3), *Fraxinus* L. (Y, spp. 12; T, spp. 2), *Jasminum* L. (Y, spp. 30; T, spp. 4), *Ligustrum* L. (Y, spp. 13; T, spp. 4), *Linociera* Sw. (Y, spp. 4), *Olea* L. (Y, spp. 9), *Osmanthus* Lour. (Y, spp. 10; T, spp. 6), *Syringa* L. (Y, spp. 6).

Onagraceae (Y, gen. 4; T, gen. 3): *Chamaenerion* Seguiet (Y, spp. 2), *Circaea* L. (Y, spp. 8; T, spp. 3), *Epilobium* L. (Y, spp. 17; T, spp. 6), *Ludwigia* L. (Y, spp. 5; T, spp. 7).

Opiliaceae (Y, gen. 5; T, gen. 1): *Cansjera* Juss. (Y, sp. 1), *Champereia* Griff. (T, sp. 1), *Lepionurus* Blume (Y, sp. 1), *Melientha* Pierre (Y, sp. 1), *Opilia* Roxb. (Y, sp. 1), *Urobotrya* Stapf (Y, sp. 1).

Orchidaceae (Y, gen. 136; T, gen. 104): *Acampe* Lindl. (Y, spp. 3; T, sp. 1), *Acanthephippium* Blume (Y, spp. 2; T, spp. 2), *Acriopsis* Reinw. (Y, sp. 1), *Aerides* Lour. (Y, spp. 4), *Agrostophyllum* Blume (Y, sp. 1; T, sp. 1), *Amitostigma* Schltr. (Y, spp. 10; T, spp. 2), *Androcorys* Schltr. (Y, spp. 3; T, sp. 1), *Ania* Lindl. (T, sp. 1), *Anoetochilus* Blume (Y, spp. 12; T, spp. 2), *Anthogonium* Wall. (Y, sp. 1), *Aphyllorchis* Blume (Y, spp. 2; T, sp. 1), *Apostasia* Blume (Y, spp. 2), *Appendicula* Blume (T, spp. 2), *Arachnis* Blume (Y, sp. 1; T, sp. 1), *Arundina* Blume (Y, sp. 1; T, sp. 1), *Ascocentrum* Schltr. (Y, spp. 2; T, sp. 1), *Bletilla* Rehb. f. (Y, spp. 3; T, spp. 2), *Brachycorythis* Lindl. (Y, spp. 2; T, sp. 1), *Bulbophyllum* Thouars (Y, spp. 65; T, spp. 24), *Bulleyia* Schltr. (Y, sp. 1), *Calanthe* Ker Gawl. (Y, spp. 27; T, spp. 19), *Calypso* Salisb. (Y, sp. 1), *Cephalanthera* Rich. (Y, spp. 4; T, sp. 1), *Cephalantheropsis* Guillaumin (Y, spp. 2; T, spp. 3), *Ceratostylis* Blume (Y, sp. 1), *Chamaegastrodia* Makino & F. Maek. (Y, spp. 2), *Cheirostylis* Blume (Y, spp. 3; T, spp. 8), *Chiloschista* Lindl. (Y, sp. 1; T, sp. 1), *Chrysoglossum* Blume (Y, sp. 1; T, sp. 1), *Cleisostoma* Blume (Y, spp. 12; T, spp. 2), *Coeloglossum* Hartm. (Y, sp. 1; T, sp. 1), *Coelogyne* Lindl. (Y, spp. 23), *Collabium* Blume (Y, spp. 3; T, spp. 2), *Corybas* Salisb. (Y, sp. 1; T, spp. 2), *Corymborkis* Thouars (Y, sp. 1), *Cremastra* Lindl. (Y, sp. 1; T, sp. 1), *Cryptochilus* Wall. (Y, spp. 2), *Cryptostylis* R. Br. (T, spp. 2), *Cymbidium* Sw. (Y, spp. 28; T, spp. 9), *Cypripedium* L. (Y, spp. 15; T, spp. 4), *Cyrtosia* Blume (T, sp. 1), *Dendrobium* Sw. (Y, spp. 59; T, spp. 12), *Dendrochilum* Blume (T, sp. 1), *Didiciea* King & Prain (T, sp. 1), *Didymoplexiella* Garay (T, sp. 1), *Didymoplexis* Griff. (T, sp. 1), *Diglyphosa* Blume (Y, sp. 1), *Diphylax* Hook. f. (Y, spp. 3), *Diplomeris* D. Don (Y, sp. 1), *Diploprora* Hook. f. (Y, sp. 1; T, sp. 1), *Disperis* Sw. (T, sp. 1), *Epigeneium*

- Gagnep. (Y, spp. 6; T, spp. 2), *Epipactis* Zinn. (Y, spp. 3), *Epipogium* Gmelin (Y, spp. 2; T, spp. 2), *Eria* Lindl. (Y, spp. 30; T, spp. 7), *Eriodes* Rolfe (Y, sp. 1), *Erythroides* Blume (Y, sp. 1; T, sp. 1), *Erythrorchis* Blume (T, sp. 1), *Esmeralda* Rchb. f. (Y, spp. 2), *Eulophia* R. Br. (Y, spp. 7; T, spp. 4), *Flickingeria* A. D. Hawkes (Y, spp. 6; T, spp. 2), *Galeola* Lour. (Y, spp. 2; T, spp. 2), *Gastrochilus* D. Don (Y, spp. 12; T, spp. 9), *Gastrodia* R. Br. (Y, spp. 4; T, spp. 9), *Geodorum* G. Jacks. (Y, spp. 4; T, sp. 1), *Goodyera* R. Br. (Y, spp. 16; T, spp. 20), *Gymnadenia* R. Br. (Y, spp. 3; T, spp. 4), *Habenaria* Willd. (Y, spp. 35; T, spp. 8), *Hancockia* Rolfe (Y, sp. 1), *Haraella* Kudô (T, sp. 1), *Hemipilia* Lindl. (Y, spp. 4; T, sp. 1), *Herminium* L. (Y, spp. 16; T, sp. 1), *Herpysma* Lindl. (Y, sp. 1), *Hetaeria* Blume (Y, sp. 1; T, sp. 1), *Holcoglossum* Schltr. (Y, spp. 7; T, sp. 1), *Hygrochilus* Pfitz. (Y, sp. 1), *Hylophila* Lindl. (T, sp. 1), *Kingidium* P. F. Hunt (Y, spp. 3), *Lecanorchis* Blume (Y, sp. 1; T, spp. 3), *Liparis* Rich. (Y, spp. 35; T, spp. 20), *Listera* R. Br. (Y, spp. 5; T, spp. 9), *Ludisia* A. Rich. (Y, sp. 1), *Luisia* Gaudich. (Y, spp. 7; T, spp. 3), *Malaxis* Sol. (Y, spp. 12; T, spp. 7), *Malleola* J. J. Sm. & Schltr. (Y, sp. 1), *Microtatorchis* Schltr. (T, sp. 1), *Microtis* R. Br. (T, sp. 1), *Mischobulbum* Schltr. (Y, sp. 1; T, sp. 1), *Monomeria* Lindl. (Y, sp. 1), *Myrmechis* Blume (Y, spp. 3; T, sp. 1), *Neogyna* Rchb. f. (Y, sp. 1), *Neottia* Guett. (Y, spp. 4; T, sp. 1), *Neottianthe* Schltr. (Y, spp. 7), *Nervilia* Comm. (Y, spp. 3; T, spp. 5), *Neuwiedia* Blume (Y, sp. 1), *Oberonia* Lindl. (Y, spp. 18; T, spp. 7), *Odontochilus* Blume (T, spp. 4), *Orchis* L. (Y, spp. 11), *Oreorchis* Lindl. (Y, spp. 7; T, spp. 4), *Ornithochilus* (Lindl.) Wall. (Y, spp. 2), *Otochilus* Lindl. (Y, spp. 4), *Pachystoma* Blume (Y, sp. 1; T, sp. 1), *Panisea* (Lindl.) Steud. (Y, spp. 4), *Paphiopedilum* Pfitz. (Y, spp. 14), *Papilionanthe* Schltr. (Y, spp. 2; T, sp. 1), *Parapteroceras* Averyanov (Y, sp. 1), *Pecteilis* Raf. (Y, spp. 2), *Pelatantheria* Ridl. (Y, spp. 3), *Pennilabium* J. J. Sm. (Y, sp. 1), *Peristylus* Blume (Y, spp. 15; T, spp. 4), *Phaius* Lour. (Y, spp. 7; T, spp. 4), *Phalaenopsis* Blume (Y, spp. 3; T, spp. 2), *Pholidota* Lindl. (Y, spp. 11; T, sp. 1), *Phreatia* Lindl. (Y, sp. 1; T, spp. 4), *Platanthera* Rich. (Y, spp. 22; T, spp. 6), *Pleione* D. Don (Y, spp. 15; T, sp. 1), *Podochilus* Blume (Y, sp. 1), *Pogonia* Juss. (Y, spp. 2; T, sp. 1), *Polystachya* Hook. (Y, sp. 1), *Pomatocalpa* Breda, Kuhl & Hasselt (T, sp. 1), *Porpax* Lindl. (Y, sp. 1), *Pteroceras* Hasselt (Y, spp. 2), *Renanthera* Lour. (Y, spp. 2), *Rhynchostylis* Blume (Y, sp. 1), *Risleya* King & Pantl. (Y, sp. 1), *Robiquetia* Gaudich. (Y, sp. 1), *Sarcoglyphis* Garay (Y, spp. 2), *Satyrium* Sw. (Y, spp. 3), *Schoenorchis* Blume (Y, spp. 2; T, sp. 1), *Sedirea* Garay & H. R. Sweet (Y, sp. 1), *Smithorchis* T. Tang & F. T. Wang (Y, sp. 1), *Smitinandia* Holttum (Y, sp. 1), *Spathoglottis* Blume (Y, sp. 1; T, sp. 1), *Spiranthes* Rich. (Y, sp. 1; T, sp. 1), *Staurochilus* Ridl. (Y, spp. 2; T, sp. 1), *Stereosandra* Blume (Y, sp. 1; T, sp. 1), *Sunipia* Lindl. (Y, spp. 7; T, sp. 1), *Taeniophyllum* Blume (Y, spp. 2; T, spp. 2), *Tainia* Blume (Y, spp. 5; T, spp. 3), *Thelasis* Blume (Y, spp. 2; T, sp. 1), *Thrixspermum* Lour. (Y, spp. 2; T, spp. 9), *Thunia* Rchb. f. (Y, sp. 1), *Tipularia* Nutt. (Y, sp. 1; T, sp. 1), *Trichoglottis* Blume (Y, sp. 1; T, sp. 1), *Tropidia* Lindl. (Y, spp. 2; T, spp. 3), *Tsaiorchis* Tang & F. T. Wang (Y, sp. 1), *Tuberolabium* Yamam. (T, sp. 1), *Tulotis* Raf. (Y, sp. 1; T, sp. 1), *Uncifera* Lindl. (Y, sp. 1), *Vanda* Jones ex R. Br. (Y, spp. 8; T, sp. 1), *Vandopsis* Pfitz. (Y, spp. 2), *Vanilla* Mill. (Y, sp. 1; T, sp. 1), *Vexillabium* F. Maek. (T, spp. 2), *Vrydagzynea* Blume (T, sp. 1), *Yoania* Maxim. (T, sp. 1), *Zeuxine* Lindl. (Y, spp. 5; T, spp. 10).
- Orobanchaceae** (Y, gen. 9; T, gen. 7): *Aeginetia* L. (Y, sp. 1; T, sp. 1), *Boschniakia* C. A. Mey. (Y, sp. 1; T, sp. 1), *Christisonia* Gardner (Y, sp. 1; T, sp. 1), *Euphrasia* L. (Y, sp. 1; T, spp. 3), *Gleadovia* Gamble & Prain (Y, sp. 1), *Melampyrum* L. (Y, sp. 1), *Orobanche* L. (Y, spp. 2; T, sp. 1), *Pedicularis* L. (Y, spp. 150; T, spp. 2), *Striga* Lour. (Y, spp. 3; T, spp. 2).
- Oxalidaceae** (Y, gen. 3; T, gen. 2): *Averrhoa* L. (Y, sp. 1), *Biophytum* DC. (Y, spp. 4; T, sp. 1), *Oxalis* L. (Y, spp. 5; T, spp. 2).
- Paeoniaceae** (Y, gen. 1): *Paeonia* L. (Y, spp. 5).
- Palmae** (Y, gen. 17; T, gen. 5): *Areca* L. (Y, spp. 2), *Arenga* Labill. (Y, spp. 4; T, sp. 1), *Calamus* L. (Y, spp. 23; T, spp. 2), *Caryota* L. (Y, spp. 5), *Chuniophoenix* Burret. (Y, spp. 2), *Cocos* L. (Y, sp. 1), *Daemonorops* Blume (Y, sp. 1), *Guihaia* J. Dransf., S. K. Lee & F. N. Wei (Y, sp. 1), *Licuala* Thunb. (Y, sp. 1), *Livistona* R. Br. (Y, spp. 3; T, sp. 1), *Phoenix* L. (Y, spp. 4; T, sp. 1), *Pinanga* Blume (Y, spp. 5; T, sp. 1), *Plectocomia* Mart. (Y, spp. 3), *Rhapis* L. f. (Y, spp. 3), *Salacca* Reinw. (Y, sp. 1), *Trachycarpus* H. Wendl. (Y, spp. 3), *Wallichia* Roxb. (Y, spp. 6).
- Pandaceae** (Y, gen. 1): *Microdesmis* Hook. f. (Y, sp. 1).
- Pandanaceae** (Y, gen. 1; T, gen. 2): *Freycinetia* Gaudich. (T, sp. 1), *Pandanus* Parkinson (Y, spp. 2; T, sp. 1).
- Papaveraceae** (Y, gen. 6; T, gen. 3): *Argemone* L. (Y, sp. 1; T, sp. 1), *Dicranostigma* Hook. f. & Thomson (Y, spp. 2), *Eomecon* Hance (Y, sp. 1), *Macleaya* R. Br. (Y, sp. 1; T, sp. 1), *Meconopsis* R. Vig. (Y, spp. 17), *Papaver* L. (Y, spp. 3; T, spp. 2).
- Passifloraceae** (Y, gen. 2; T, gen. 2): *Adenia* Forssk. (Y, spp. 2; T, sp. 1), *Passiflora* L. (Y, spp. 12; T, spp. 3).
- Pentaphragmataceae** (Y, gen. 1): *Pentaphragma* Wall. (Y, sp. 1).
- Pentaphyllacaceae** (Y, gen. 1): *Pentaphyllax* Gardner & Champ. (Y, sp. 1).
- Philydraceae** (T, gen. 1): *Philydrum* Banks (T, sp. 1).
- Phrymaceae** (Y, gen. 2; T, gen. 1): *Mazus* Lour. (Y, spp. 10; T, spp. 7), *Phryma* L. (Y, sp. 1).
- Pinaceae** (Y, gen. 8; T, gen. 6): *Abies* Mill. (Y, spp. 6; T, sp. 1), *Keteleeria* Carrière (Y, spp. 3; T, sp. 1), *Larix* Mill. (Y, sp. 1), *Picea* A. Dietr. (Y, spp. 2; T, sp. 1), *Pinus* L. (Y, spp. 15; T, spp. 3), *Pseudolarix* Gordon (Y, sp. 1), *Pseudotsuga* Carrière (Y, spp. 2; T, sp. 1), *Tsuga* Carrière (Y, spp. 3; T, sp. 1).
- Piperaceae** (Y, gen. 3; T, gen. 2): *Peperomia* Ruiz & Pav. (Y, spp. 6; T, spp. 6), *Piper* L. (Y, spp. 41; T, spp. 8), *Zippelia* Blume (Y, sp. 1).
- Pittosporaceae** (Y, gen. 1; T, gen. 1): *Pittosporum* Banks (Y, spp. 28; T, spp. 5).
- Plantaginaceae** (Y, gen. 10; T, gen. 7): *Bacopa* Aubl. (Y, sp. 1; T, sp. 1), *Callitriche* L. (Y, spp. 2; T, spp. 3), *Hippuris* L. (Y, sp. 1), *Lagotis* Geartn. (Y, spp. 5), *Limnophila* R. Br. (Y, spp. 8; T, spp. 7), *Linaria* Mill. (Y, spp. 3), *Plantago* L. (Y, spp. 7; T, spp. 5), *Scoparia* L. (Y, sp. 1; T, sp. 1), *Veronica* L. (Y, spp. 19; T, spp. 10), *Veronicastrum* Heister (Y, spp. 5; T, spp. 2).
- Plumbaginaceae** (Y, gen. 2; T, gen. 2): *Ceratostigma* Bunge (Y, spp. 2), *Limonium* Mill. (T, spp. 2), *Plumbago* L. (Y, spp. 3; T, sp. 1).
- Poaceae** (Y, gen. 175; T, gen. 123): *Achnatherum* P. Beauv. (Y, spp. 4), *Acidosasa* C. D. Chu & C. S. Chao (Y, sp. 1), *Acrachne* Wight & Arn. (Y, sp. 1), *Agropogon* P. Fourn. (Y, sp. 1), *Agropyron* Gaertn. (T, spp. 2), *Agrostis* L. (Y, spp. 31; T, spp. 2), *Alloteropsis* J. Presl (Y, sp. 1; T, sp. 1), *Alopecurus* L. (Y, spp. 2; T, sp. 1), *Ampelocalamus* S. L. Chen, T. H. Wen & G. Y. Sheng (Y, spp. 5), *Andropogon* L. (Y, spp. 3), *Anisachne* Keng (Y, sp. 1), *Aniselytron* Merr. (Y, sp. 1; T, spp. 2), *Anthoxanthum* L. (Y, spp. 3; T, sp. 1), *Apluda* L. (Y, sp. 1; T, sp. 1), *Apocopis* Nees (Y, spp. 4),

Aristida L. (Y, spp. 5; T, sp. 1), *Arthraxon* P. Beauv. (Y, spp. 13; T, spp. 3), *Arundinaria* Michx. (Y, spp. 5; T, spp. 6), *Arundinella* Raddi (Y, spp. 16; T, spp. 3), *Arundo* L. (Y, sp. 1; T, spp. 2), *Avena* L. (Y, spp. 5; T, spp. 2), *Axonopus* P. Beauv. (Y, sp. 1; T, spp. 2), *Bambusa* Schreb. (Y, spp. 21; T, spp. 18), *Beckmannia* Host (Y, sp. 1), *Bonia* Balansa (Y, sp. 1), *Bothriochloa* Kuntze (Y, spp. 9; T, spp. 3), *Brachiaria* Griseb. (Y, spp. 7; T, spp. 4), *Brachyelytrum* P. Beauv. (Y, sp. 1), *Brachypodium* P. Beauv. (Y, spp. 3; T, spp. 2), *Briza* L. (Y, sp. 1; T, sp. 1), *Bromus* L. (Y, spp. 15; T, spp. 4), *Calamagrostis* Adans. (Y, spp. 3; T, sp. 1), *Capillipedium* Stapf (Y, spp. 2; T, spp. 3), *Catabrosa* P. Beauv. (Y, sp. 1), *Cenchrus* L. (Y, spp. 2; T, sp. 1), *Centotheca* Desv. (Y, sp. 1; T, sp. 1), *Cephalostachyum* Munro (Y, spp. 6), *Chimonobambusa* Makino (Y, spp. 9; T, sp. 1), *Chimonocalamus* J. R. Kue (Y, spp. 9), *Chloris* Sw. (Y, spp. 3; T, spp. 4), *Chrysopogon* Trin. (Y, spp. 2; T, sp. 1), *Coelachne* R. Br. (Y, sp. 1), *Coelorachis* Brongn. (Y, spp. 2), *Coix* L. (Y, spp. 6; T, sp. 1), *Crypsis* Aiton. (Y, sp. 1), *Cymbopogon* Spreng. (Y, spp. 19; T, sp. 1), *Cynodon* Rich. (Y, sp. 1; T, spp. 2), *Cyrtococcum* Stapf (Y, spp. 4; T, spp. 2), *Dactylis* L. (Y, sp. 1; T, sp. 1), *Dactyloctenium* Willd. (Y, sp. 1; T, sp. 1), *Danthonia* DC. (Y, sp. 1), *Dendrocalamus* Nees (Y, spp. 22; T, spp. 5), *Deschampsia* P. Beauv. (Y, spp. 3; T, sp. 1), *Deyeuxia* Clarion (Y, spp. 16; T, spp. 2), *Dichanthium* Willemet (Y, spp. 4; T, spp. 2), *Digitaria* Haller (Y, spp. 20; T, spp. 13), *Dimeria* R. Br. (Y, spp. 2; T, spp. 2), *Dinebra* Jacq. (Y, sp. 1), *Diplachne* P. Beauv. (Y, sp. 1; T, sp. 1), *Drepanostachyum* Keng f. (Y, spp. 2), *Duthiea* Hack. (Y, sp. 1), *Eccoilopus* Steud. (T, spp. 2), *Echinochloa* P. Beauv. (Y, spp. 9; T, spp. 3), *Eleusine* Gaertn. (Y, spp. 2; T, spp. 2), *Elymus* L. (Y, spp. 6), *Elytrigia* Desv. (Y, sp. 1), *Elytrophorus* P. Beauv. (Y, sp. 1), *Enneapogon* Desv. (Y, sp. 1), *Enteropogon* Nees (Y, sp. 1; T, spp. 2), *Eragrostiella* Bor (Y, sp. 1), *Eragrostis* Wolf (Y, spp. 23; T, spp. 17), *Eremochloa* Buese (Y, spp. 3; T, spp. 2), *Erianthus* Michx. (Y, spp. 4; T, spp. 2), *Eriochloa* Kunth (Y, sp. 1; T, spp. 2), *Eulalia* Kunth (Y, spp. 12; T, spp. 3), *Eulaliopsis* Honda (Y, sp. 1; T, sp. 1), *Eustachys* Desv. (T, sp. 1), *Fargesia* Franch. (Y, spp. 39), *Ferocalamus* J. R. Xue & Keng f. (Y, spp. 2), *Festuca* L. (Y, spp. 27; T, spp. 7), *Gaoligongshania* D. Z. Li, Hsueh & N. H. Xia (Y, sp. 1), *Garnotia* Brongn. (Y, spp. 3; T, sp. 1), *Germainia* Balansa & Poitr. (Y, sp. 1), *Gigantochloa* Kurz (Y, spp. 6; T, sp. 1), *Glyceria* R. Br. (Y, spp. 4; T, sp. 1), *Hackelochloa* Kuntze (Y, spp. 2; T, sp. 1), *Harpachne* Hochst. (Y, sp. 1), *Helictotrichon* Besser (Y, spp. 6; T, sp. 1), *Hemarthria* R. Br. (Y, spp. 4; T, sp. 1), *Heteropogon* Pers. (Y, spp. 3; T, sp. 1), *Hierochloe* R. Br. (Y, sp. 1), *Hordeum* L. (Y, spp. 2; T, sp. 1), *Hygroryza* Nees (Y, sp. 1; T, sp. 1), *Hymenachne* P. Beauv. (Y, spp. 3; T, sp. 1), *Hyparrhenia* Andersson (Y, spp. 5), *Hystrix* Moench (Y, sp. 1), *Ichnanthus* P. Beauv. (Y, sp. 1; T, sp. 1), *Imperata* Cirillo (Y, sp. 1), *Indocalamus* Nakai (Y, sp. 1), *Indosasa* McClure (Y, spp. 5), *Isachne* R. Br. (Y, spp. 9; T, spp. 8, T), *Ischaemum* L. (Y, spp. 6; T, spp. 7), *Koeleria* Pers. (Y, sp. 1), *Leersia* Sw. (Y, sp. 1; T, sp. 1), *Leptaspis* R. Br. (T, sp. 1), *Leptocanna* L. C. Chia & H. L. Fung (Y, sp. 1), *Leptochloa* P. Beauv. (Y, spp. 2; T, spp. 2), *Lepturus* R. Br. (T, sp. 1), *Littledalea* Hemsl. (Y, spp. 2), *Lolium* L. (Y, spp. 2; T, spp. 2), *Lophatherum* Brongn. (Y, sp. 1; T, sp. 1), *Melica* L. (Y, spp. 4; T, sp. 1), *Melocalamus* Benth. (Y, spp. 3), *Microchloa* R. Br. (Y, sp. 1), *Microstegium* Nees (Y, spp. 8; T, spp. 8), *Milium* L. (Y, sp. 1; T, sp. 1), *Miscanthus* Andersson (Y, spp. 8; T, spp. 2), *Muhlenbergia* Schreb. (Y, spp. 5; T, sp. 1), *Narenga* Bor (T, sp. 1), *Neohusnotia* A. Camus (Y, sp. 1), *Neyraudia* Hook. f. (Y, sp. 1; T, sp. 1), *Ophiuros* C. F. Gaertn. (Y, sp.

1), *Oplismenus* P. Beauv. (Y, spp. 4; T, spp. 3), *Orthoraphium* Nees (Y, sp. 1), *Oryza* L. (Y, spp. 4; T, spp. 2), *Oryzopsis* Michx. (Y, spp. 6; T, sp. 1), *Ottochloa* Dandy (Y, sp. 1; T, sp. 1), *Panicum* L. (Y, spp. 14; T, spp. 12), *Paspalidium* Stapf (Y, spp. 2; T, spp. 2), *Paspalum* L. (Y, spp. 10; T, spp. 13), *Pennisetum* Rich. (Y, spp. 9; T, spp. 4), *Perotis* Aiton (Y, spp. 2; T, spp. 2), *Phacelurus* Griseb. (Y, sp. 1), *Phaenosperma* Munro (Y, sp. 1; T, sp. 1), *Phalaris* L. (Y, spp. 4; T, spp. 2), *Phleum* L. (Y, spp. 2; T, sp. 1), *Phragmites* Adans. (Y, spp. 3; T, spp. 2), *Phyllostachys* Siebold & Zucc. (Y, spp. 12; T, spp. 8), *Poa* L. (Y, spp. 78; T, spp. 7), *Pogonatherum* P. Beauv. (Y, spp. 2; T, spp. 2), *Polypogon* Desf. (Y, spp. 2; T, spp. 2), *Polytoca* R. Br. (Y, sp. 1), *Pseudechinolaena* Stapf (Y, sp. 1), *Pseudopogonatherum* A. Camus (Y, spp. 2), *Pseudoraphis* Griff. (Y, sp. 1; T, sp. 1), *Pseudosasa* Makino (T, spp. 2), *Pseudosorghum* A. Camus (Y, spp. 2), *Pseudostachyum* Munro (Y, sp. 1), *Ptilagrostis* Griseb. (Y, spp. 3), *Qiongzhusia* (Wen & Ohmberger) Hsueh & Yi (Y, spp. 2), *Racemobambos* Holttum (Y, sp. 1), *Rhytachne* Desv. (Y, spp. 2), *Roegneria* K. Koch (Y, spp. 20), *Rottboellia* L. f. (Y, sp. 1; T, sp. 1), *Saccharum* L. (Y, spp. 7; T, spp. 4), *Sacciolepis* Nash (Y, spp. 3; T, sp. 1), *Schizachne* Hack. (Y, sp. 1), *Schizachyrium* Nees (Y, spp. 3; T, sp. 1), *Schizostachyum* Thomas Nees (Y, spp. 3; T, spp. 2), *Sehima* Forssk. (Y, sp. 1), *Semiarundinaria* Nakai (T, sp. 1), *Setaria* P. Beauv. (Y, spp. 13; T, spp. 9), *Shibataea* Makino (T, sp. 1), *Sinobambusa* Makino (Y, spp. 2; T, spp. 2), *Sorghum* Moench (Y, spp. 7; T, spp. 5), *Sphaerocaryum* Nees (Y, sp. 1; T, sp. 1), *Spinifex* L. (T, sp. 1), *Spodiopogon* Trin. (Y, spp. 4; T, sp. 1), *Sporobolus* R. Br. (Y, spp. 4; T, spp. 2), *Stenotaphrum* Trin. (Y, sp. 1), *Stipa* L. (Y, spp. 3), *Stipagrostis* Nees (Y, sp. 1), *Thaumastochloa* C. E. Hubb. (T, spp. 2), *Themeda* Forssk. (Y, spp. 14; T, spp. 2), *Thuarea* Pers. (T, sp. 1), *Thyrsia* Stapf (Y, sp. 1), *Thyrsostachys* Gamble (Y, spp. 2; T, sp. 1), *Thysanolaena* Nees (Y, sp. 1; T, sp. 1), *Tragus* Haller (Y, spp. 2), *Trikeria* Bor (Y, sp. 1), *Tripogon* Roem. & Schult. (Y, spp. 7; T, sp. 1), *Trisetum* Pers. (Y, spp. 5; T, sp. 1), *Triticum* L. (Y, sp. 1; T, sp. 1), *Urochloa* P. Beauv. (Y, spp. 5), *Vulpia* C. C. Gmel. (T, sp. 1), *Yushania* Keng f. (Y, spp. 27; T, sp. 1), *Zizania* L. (Y, sp. 1; T, sp. 1), *Zoysia* Willd. (Y, spp. 3; T, spp. 4).

Podocarpaceae (Y, gen. 1; T, gen. 2): *Nageia* Gaertn. (T, spp. 2), *Podocarpus* L'Hér. (Y, spp. 8; T, spp. 4).

Podostemaceae (Y, gen. 1), *Hydrobryum* Endl. (Y, sp. 1).

Polemoniaceae (Y, gen. 1): *Polemonium* L. (Y, sp. 1).

Polygalaceae (Y, gen. 4; T, gen. 3): *Epirixanthes* Blume (T, sp. 1), *Polygala* L. (Y, spp. 24; T, spp. 5), *Salomonina* Lour. (Y, spp. 3; T, sp. 1), *Securidaca* L. (Y, spp. 2), *Xanthophyllum* Roxb. (Y, spp. 3).

Polygonaceae (Y, gen. 9; T, gen. 3): *Antenorion* Raf. (Y, sp. 1), *Fagopyrum* Mill. Y. (Y, spp. 10; T, sp. 1), *Fallopia* Adans. (Y, spp. 6), *Koenigia* L. (Y, sp. 1), *Oxyria* Hill (Y, spp. 2), *Polygonum* L. (Y, spp. 64; T, spp. 35), *Reynoutria* Houtt. (Y, sp. 1), *Rheum* L. (Y, spp. 12), *Rumex* L. (Y, spp. 11; T, spp. 6).

Pontederiaceae (Y, gen. 2; T, gen. 2): *Eichhornia* Kunth (Y, sp. 1; T, sp. 1), *Monochoria* C. Presl (Y, spp. 2; T, sp. 1).

Portulacaceae (Y, gen. 2; T, gen. 2): *Portulaca* L. (Y, spp. 4; T, spp. 3), *Talinum* Adans. (Y, sp. 1; T, sp. 1).

Potamogetonaceae (Y, gen. 1; T, gen. 1): *Potamogeton* L. (Y, spp. 12; T, spp. 9).

Primulaceae (Y, gen. 4; T, gen. 5): *Anagallis* L. (T, sp. 1), *Androsace* L. (Y, spp. 23; T, sp. 1), *Lysimachia* L. (Y, spp. 65; T, spp. 10), *Omphalogramma* Franch. (Y, spp. 6),

- Primula* L. (Y, spp. 127; T, sp. 1), *Stimpsonia* C. Wright (T, sp. 1).
- Proteaceae** (Y, gen. 2; T, gen. 1): *Helicia* Lour. (Y spp. 12; T, spp. 3), *Heliciopsis* Sleum. (Y, sp. 1).
- Rafflesiaceae** (Y, gen. 1): *Sapria* Griff. (Y, sp. 1).
- Ranunculaceae** (Y, gen. 28; T, gen. 10): *Aconitum* L. (Y, spp. 66; T, sp. 1), *Actaea* L. (Y, sp. 1), *Adonis* L. (Y, sp. 1), *Anemoclema* (Franch.) W. T. Wang (Y, sp. 1), *Anemone* L. (Y, spp. 25; T, spp. 2), *Aquilegia* L. (Y, sp. 1), *Asteropyrum* J. R. Drumm. & Hutch. (Y, spp. 2), *Batrachium* (DC.) S. F. Gray (Y, spp. 3), *Beesia* Balf. f. & W. W. Sm. (Y, sp. 1), *Calathodes* Hook. f. & Thomson (Y, spp. 2; T, sp. 1), *Callianthemum* C. A. Mey. (Y, sp. 1), *Caltha* L. (Y, spp. 3), *Cimicifuga* Wernisch. (Y, spp. 4; T, sp. 1), *Clematis* L. (Y, spp. 56; T, spp. 15), *Coptis* Salisb. (Y, spp. 3; T, sp. 1), *Delphinium* L. (Y, spp. 49), *Dichocarpum* W. T. Wang & P. K. Hsiao (Y, spp. 5; T, sp. 1), *Halerpestes* Greene (Y, sp. 1), *Kingdonia* Balf. f. & W. W. Sm. (Y, sp. 1), *Metanemone* W. T. Wang (Y, sp. 1), *Naravelia* Adans. (Y, sp. 1), *Oxygraphis* Bunge (Y, spp. 3), *Paraquilegia* J. R. Drumm. & Hutch. (Y, sp. 1), *Pulsatilla* Mill. (Y, sp. 1), *Ranunculus* L. (Y, spp. 35; T, sp. 11), *Souliea* Franch. (Y, sp. 1), *Thalictrum* L. (Y, spp. 35; T, spp. 4), *Trollius* L. (Y, spp. 6; T, sp. 1).
- Rhamnaceae** (Y, gen. 14; T, gen. 6): *Alphitonia* Reissek (Y, sp. 1), *Berchemia* Neck. (Y, spp. 13; T, spp. 4), *Berchemiella* Nakai (Y, sp. 1), *Chaydaia* Pit. (Y, sp. 1), *Colubrina* Rich. (Y, sp. 1; T, sp. 1), *Gouania* Jacq. (Y, spp. 2), *Hovenia* Thunb. (Y, sp. 1), *Paliurus* Mill. (Y, spp. 3; T, sp. 1), *Rhamnella* Miq. (Y, spp. 4), *Rhamnus* L. (Y, spp. 30; T, spp. 7), *Sageretia* Brongn. (Y, spp. 20; T, spp. 2), *Scutia* Comm. (Y, sp. 1), *Ventilago* Gaertn. (Y, spp. 5; T, spp. 2), *Ziziphus* Mill. (Y, spp. 10).
- Rhizophoraceae** (Y, gen. 2; T, gen. 2): *Carallia* Roxb. (Y, spp. 2), *Kandelia* (DC.) Wight & Arn. (T, sp. 1), *Pellacalyx* Korth. (Y, sp. 1), *Rhizophora* L. (T, sp. 1).
- Rosaceae** (Y, gen. 41; T, gen. 23): *Agrimonia* L. (Y, sp. 1; T, sp. 1), *Amygdalus* L. (Y, spp. 4), *Aria* (Pers.) Host (T, sp. 1), *Armeniaca* Scop. (Y, spp. 2), *Aruncus* L. (Y, spp. 2), *Cerasus* Mill. (Y, spp. 20), *Chaenomeles* Lindl. (Y, spp. 4), *Coluria* R. Br. (Y, spp. 2), *Cotoneaster* Medik. (Y, spp. 40; T, spp. 5), *Crataegus* L. (Y, spp. 7), *Cydonia* Mill. (Y, sp. 1), *Dichotomanthes* Kurz (Y, sp. 1), *Docynia* Decne. (Y, spp. 2), *Duchesnea* Sm. (Y, spp. 2; T, spp. 2), *Eriobotrya* Lindl. (Y, spp. 12; T, spp. 2), *Filipendula* Mill. (Y, sp. 1; T, sp. 1), *Fragaria* L. (Y, spp. 7; T, sp. 1), *Geum* L. (Y, spp. 2), *Kerria* DC. (Y, sp. 1), *Laurocerasus* Duham. (Y, spp. 9), *Malus* Mill. (Y, spp. 12; T, spp. 2), *Neillia* D. Don (Y, spp. 8), *Osteomeles* Lindl. (Y, sp. 1; T, sp. 1), *Padus* Mill. (Y, spp. 7), *Photinia* Lindl. (Y, spp. 15; T, spp. 2), *Potentilla* L. (Y, spp. 40; T, spp. 6), *Pourthiaea* Decne. (T, sp. 1), *Prinsepia* Royle (Y, sp. 1; T, sp. 1), *Prunus* L. (Y, spp. 2; T, spp. 12), *Pygeum* Gaertn. (Y, spp. 5), *Pyracantha* M. Roem. (Y, spp. 4; T, sp. 1), *Pyrus* L. (Y, spp. 7; T, spp. 2), *Raphiolepis* Lindl. (Y, spp. 2; T, sp. 1), *Rosa* L. (Y, spp. 41; T, spp. 8), *Rubus* L. (Y, spp. 104; T, spp. 34), *Sanguisorba* L. (Y, spp. 2), *Sibbaldia* L. (Y, spp. 8; T, sp. 1), *Sibiraea* Maxim. (Y, sp. 1), *Sorbaria* (Ser.) A. Braun (Y, sp. 1), *Sorbus* L. (Y, spp. 48; T, sp. 1), *Spenceria* Trimen (Y, sp. 1), *Spiraea* L. (Y, spp. 26; T, spp. 4), *Stephanandra* Sieb. & Zucc. (T, sp. 1), *Stranvaesia* Lindl. (Y, spp. 4).
- Rubiaceae** (Y, gen. 68; T, gen. 39): *Acranthera* Arn. (Y, sp. 1), *Adina* Salisb. (Y, spp. 2), *Aidia* Lour. (Y, spp. 5), *Argostemma* Wall. (Y, spp. 3; T, sp. 1), *Borreria* G. Mey. (Y, spp. 3), *Brachytome* Hook. f. (Y, spp. 3), *Caelospermum* Blume (Y, sp. 1), *Canthium* Lam. (Y, spp. 3; T, sp. 1), *Catunaregam* Wolf (Y, sp. 1), *Cephaelis* Sw. (Y, sp. 1), *Cephalanthus* L. (Y, sp. 1; T, sp. 1), *Chassalia* Comm. (Y, sp. 1), *Clarkella* Hook. f. (Y, sp. 1), *Coptosapelta* Korth. (Y, sp. 1; T, sp. 1), *Damnacanthus* Gaertn. f. (Y, spp. 6; T, spp. 2), *Dentella* J. R. Forst. & G. Forst. (Y, sp. 1; T, sp. 1), *Diodia* L. (T, sp. 1), *Diplospora* DC. (Y, spp. 3), *Duperrea* Pierre ex Pit. (Y, sp. 1), *Emmenopterys* Oliv. (Y, sp. 1), *Fagerlindia* Tirveng. (Y, sp. 1), *Galium* L. (Y, spp. 17; T, spp. 10), *Gardenia* J. Ellis (Y, spp. 2; T, sp. 1), *Geophila* D. Don (Y, sp. 1; T, sp. 1), *Guettarda* L. (T, sp. 1), *Hayataella* Masam. (T, sp. 1), *Hedyotis* L. (Y, spp. 21; T, spp. 9), *Himalrandia* T. Yamaz. (Y, sp. 1), *Hymenodictyon* Wall. (Y, spp. 2), *Hyptianthera* Wight & Arn. (Y, sp. 1), *Ixora* L. (Y, spp. 16; T, sp. 1), *Kelloggia* Torr. (Y, sp. 1), *Knoxia* L. (Y, spp. 2; T, sp. 1), *Lasianthus* Jack (Y, spp. 21; T, sp. 14), *Leptodermis* Wall. (Y, spp. 16), *Leptomischus* Drake (Y, spp. 4), *Lerchea* L. (Y, spp. 2), *Litosanthes* Blume (Y, sp. 1; T, sp. 1), *Luculia* Sweet (Y, spp. 3), *Metadina* Bakh. f. (Y, sp. 1), *Mitchella* L. (T, sp. 1), *Mitragyna* Korth. (Y, sp. 1), *Morinda* L. (Y, spp. 15; T, spp. 3), *Mussaenda* L. (Y, spp. 21; T, spp. 2), *Mycetia* Reinw. (Y, spp. 11), *Myrioneuron* R. Br. (Y, spp. 4), *Nauclea* L. (Y, sp. 1), *Neanotis* W. H. Lewis (Y, spp. 4; T, sp. 1), *Neohymenopogon* Bennet (Y, spp. 2), *Neolamarckia* J. Bosser (Y, sp. 1), *Neonauclea* Merr. (Y, spp. 3; T, sp. 1), *Nertera* Banks (Y, spp. 2; T, spp. 2), *Ophiorrhiza* L. (Y, spp. 42; T, spp. 4), *Oxyceros* Lour. (Y, spp. 3), *Paederia* L. (Y, spp. 7; T, spp. 2), *Pavetta* L. (Y, spp. 5; T, sp. 1), *Porterandia* Ridl. (Y, sp. 1), *Prismatomeris* Thwaites. (Y, sp. 1), *Psychotria* L. (Y, spp. 13; T, spp. 4), *Randia* L. (T, spp. 5), *Richardia* L. (T, spp. 2), *Rubia* L. (Y, spp. 19; T, spp. 3), *Saprosma* Blume (Y, spp. 3), *Schizomussaenda* H. L. Li (Y, sp. 1), *Serissa* Comm. (Y, spp. 2; T, sp. 1), *Sinoadina* Ridsdale (Y, sp. 1; T, sp. 1), *Spermacece* L. (T, spp. 5), *Spiradictis* Blume (Y, spp. 6), *Tarenna* Gaertn. (Y, spp. 7; T, spp. 3), *Tarennoidea* Tirveng. & Sastre (Y, sp. 1), *Theligonum* L. (T, sp. 1), *Timonius* DC. (T, sp. 1), *Trailliaedoxa* W. W. Sm. & Forrest (Y, sp. 1), *Tricalysia* A. Rich. (T, sp. 1), *Uncaria* Schreb. (Y, spp. 9; T, spp. 2), *Urophyllum* Wall. (Y, spp. 3), *Wendlandia* Bartl. (Y, spp. 22; T, spp. 3), *Xanthophytum* Reinw. (Y, sp. 1).
- Ruppiaceae** (T, gen. 1): *Ruppia* L. (T, sp. 1).
- Rutaceae** (Y, gen. 20; T, gen. 13): *Acronychia* J. R. Forst & G. Forst. (Y, sp. 1; T, sp. 1), *Aegle* Corrêa (Y, sp. 1), *Atalantia* Corrêa (Y, spp. 6), *Boenninghausenia* Rechb. (Y, spp. 2; T, sp. 1), *Citrus* L. (Y, spp. 13; T, spp. 4), *Clausena* Burm. f. (Y, spp. 11; T, spp. 2), *Euodia* J. R. (Y, spp. 11), *Evodia* Lam. (Y, sp. 1), *Fortunella* Swingle (Y, spp. 3), *Glycosmis* Corrêa (Y, spp. 8; T, sp. 1), *Luvunga* Buch.-Ham. (Y, spp. 2), *Melicope* J. R. Forst. & G. Forst. (T, spp. 3), *Micromelum* Blume (Y, spp. 3), *Murraya* J. König (Y, spp. 4; T, spp. 3), *Orixa* Thunb. (Y, sp. 1), *Paramignya* Wight (Y, spp. 2), *Phellodendron* Rupr. (Y, sp. 1; T, sp. 1), *Poncirus* Raf. (Y, spp. 2), *Severinia* Ten. (T, sp. 1), *Skimmia* Thunb. (Y, sp. 1; T, spp. 2), *Tetradium* Lour. (T, spp. 2), *Toddalia* Juss. (Y, sp. 1; T, sp. 1), *Zanthoxylum* L. (Y, spp. 28; T, spp. 9).
- Sabiaceae** (Y, gen. 2; T, gen. 2): *Meliosma* Blume (Y, spp. 22; T, spp. 4), *Sabia* Colebr. (Y, spp. 13; T, spp. 2).
- Salicaceae** (Y, gen. 4; T, gen. 3): *Casearia* Jacq. (Y, spp. 7; T, sp. 1), *Homalium* Jacq. (Y, sp. 1; T, sp. 1), *Populus* L. (Y, spp. 16), *Salix* L. (Y, spp. 87; T, spp. 5).
- Santalaceae** (Y, gen. 6; T, gen. 1): *Dendrotrophe* Miq. (Y, spp. 7), *Osyris* L. (Y, sp. 1), *Phacellaria* Benth. (Y, spp. 5), *Pyrularia* Michx. (Y, sp. 1), *Scleropyrum* Arn. (Y, sp. 1), *Thesium* L. (Y, spp. 9; T, sp. 1).
- Sapindaceae** (Y, gen. 20; T, gen. 9): *Acer* L. (Y, spp. 51; T, spp. 4), *Allophylus* L. (Y, spp. 3; T, sp. 1), *Amesiodendron* Hu (Y, sp. 1), *Arytera* Blume (Y, sp. 1), *Cardiospermum* L.

- (Y, sp. 1; T, sp. 1), *Delavaya* Franch. (Y, sp. 1), *Dimocarpus* Lour. (Y, spp. 3), *Dipteronia* Oliv. (Y, sp. 1), *Dodonaea* Mill. (Y, sp. 1; T, sp. 1), *Eurycorymbus* Hand.-Mazz. (Y, sp. 1; T, sp. 1), *Harpullia* Roxb. (Y, sp. 1), *Koelreuteria* Laxm. (Y, spp. 2; T, sp. 1), *Lepisanthes* Blume (Y, spp. 3), *Litchi* Sonn. (Y, sp. 1; T, sp. 1), *Mischocarpus* Blume (Y, spp. 2), *Nephelium* L. (Y, sp. 1), *Pavieasia* Pierre (Y, sp. 1), *Pometia* J. R. Forst. & G. Forst. (Y, sp. 1; T, sp. 1), *Sapindus* L. (Y, spp. 4; T, sp. 1), *Xerospermum* Blume (Y, sp. 1).
- Sapotaceae** (Y, gen. 7; T, gen. 2): *Eberhardtia* Lecomte (Y, spp. 2), *Madhuca* J. F. Gmel. (Y, sp. 1), *Palaquium* Blanco (T, sp. 1), *Planchonella* Pierre (Y, spp. 2; T, spp. 2), *Pouteria* Aubl. (Y, sp. 1), *Sarcosperma* Hook. f. (Y, spp. 3), *Sinosideroxylon* (Engl.) Aubr. (Y, sp. 1), *Xantolis* Raf. (Y, spp. 3).
- Sargentodoxaceae** (Y, gen. 1): *Sargentodoxa* Rehder & E. H. Wilson (Y, sp. 1).
- Saururaceae** (Y, gen. 3; T, gen. 2): *Gymnotheca* Decne. (Y, sp. 1), *Houttuynia* Thunb. (Y, sp. 1; T, sp. 1), *Saururus* L. (Y, sp. 1; T, sp. 1).
- Saxifragaceae** (Y, gen. 9; T, gen. 7): *Astilbe* Buch.-Ham. (Y, spp. 3; T, spp. 2), *Bergenia* Moench (Y, spp. 2), *Cardiandra* Sieb. & Zucc. (T, sp. 1), *Chrysosplenium* L. (Y, spp. 11; T, spp. 2), *Mitella* L. (T, sp. 1), *Parnassia* L. (Y, spp. 20; T, sp. 1), *Penthorum* L. (Y, sp. 1), *Rodgersia* A. Gray (Y, spp. 3), *Saniculiphyllum* C. Y. Wu & Ku (Y, sp. 1), *Saxifraga* L. (Y, spp. 103; T, sp. 1), *Tiarella* L. (Y, sp. 1; T, sp. 1).
- Schisandraceae** (Y, gen. 3; T, gen. 3): *Illicium* L. (Y, spp. 12; T, spp. 3), *Kadsura* Juss. (Y, spp. 7; T, spp. 2), *Schisandra* Michx. (Y, spp. 11; T, sp. 1).
- Schoepfiaceae** (Y, gen. 1; T, gen. 1): *Schoepfia* Schreb. (Y, spp. 2; T, sp. 1).
- Scrophulariaceae** (Y, gen. 29; T, gen. 12): *Adenosma* R. Br. (Y, spp. 3), *Alectra* Thunb. (Y, sp. 1; T, sp. 1), *Brandisia* Hook. f. & Thomson (Y, spp. 6), *Buchnera* L. (Y, sp. 1), *Centranthera* R. Br. (Y, spp. 2; T, sp. 1), *Cyrtandromoea* Zoll. (Y, spp. 2), *Deinostema* T. Yamaz. (T, spp. 2), *Dopatrium* Buch.-Ham. (Y, sp. 1; T, sp. 1), *Ellisiophyllum* Maxim. (Y, sp. 1; T, sp. 1), *Gratiola* L. (Y, spp. 2), *Hemiphragma* Wall. (Y, sp. 1; T, sp. 1), *Lancea* Hook. f. & Thomson (Y, spp. 2), *Legazpia* Blanco (T, sp. 1), *Limosella* L. (Y, sp. 1), *Lindenbergia* Lehm. (Y, spp. 4), *Microcarpaea* R. Br. (Y, sp. 1; T, sp. 1), *Mimulicalyx* P. C. Tsoong (Y, spp. 2), *Mimulus* L. (Y, spp. 3), *Myoporum* Banks & Sol. (T, sp. 1), *Neopicrorhiza* D. Y. Hong (Y, sp. 1), *Petitmenginina* Bonati (Y, sp. 1), *Phtheirospermum* Bunge (Y, spp. 3; T, sp. 1), *Picria* Lour. (Y, sp. 1), *Pseudolysimachion* (W. D. J. Koch) Opiz (Y, sp. 1), *Pterygiella* Oliv. (Y, spp. 4), *Rehmannia* Libosch. (Y, sp. 1), *Scrophularia* L. (Y, spp. 11; T, sp. 1), *Siphonostegia* Benth (Y, sp. 1; T, sp. 1), *Sopubia* Buch.-Ham. (Y, sp. 1), *Verbascum* L. (Y, spp. 2), *Wightia* Wall. (Y, spp. 2), *Xizangia* D. Y. Hong (Y, sp. 1).
- Simaroubaceae** (Y, gen. 3; T, gen. 3): *Ailanthus* Desf. (Y, spp. 5; T, sp. 2), *Brucea* J. F. Mill. (Y, spp. 2; T, sp. 1), *Picrasma* Blume (Y, spp. 2; T, sp. 1).
- Sladeniaceae** (Y, gen. 1): *Sladenia* Kurz (Y, sp. 1).
- Smilacaceae** (Y, gen. 2; T, gen. 2): *Heterosmilax* Kunth (Y, spp. 8; T, spp. 3), *Smilax* L. (Y, spp. 47; T, spp. 18).
- Solanaceae** (Y, gen. 11; T, gen. 5): *Anisodus* Link (Y, spp. 4), *Atropanthe* Pascher (Y, sp. 1), *Hyoscyamus* L. (Y, sp. 1), *Lycianthes* (Dunal) Hassl. (Y, spp. 6; T, spp. 2), *Lycium* L. (Y, spp. 2), *Mandragora* L. (Y, sp. 1), *Physaliastrum* Makino (Y, spp. 2; T, sp. 1), *Physalis* L. (Y, spp. 4; T, spp. 2), *Scopolia* Jacq. (Y, sp. 1), *Solanum* L. (Y, spp. 29; T, spp. 19), *Tubocapsicum* (Wettst.) Makino (Y, sp. 1; T, sp. 1).
- Sonneratiaceae** (Y, gen. 1): *Duabanga* Buch.-Ham. (Y, sp. 1).
- Sphenocleaceae** (Y, gen. 1; T, gen. 1): *Sphenoclea* Gaertn. (Y, sp. 1; T, sp. 1).
- Stachyuraceae** (Y, gen. 1; T, gen. 1): *Stachyurus* Sieb. & Zucc. (Y, spp. 8; T, sp. 1).
- Staphyleaceae** (Y, gen. 4; T, gen. 2): *Euscaphis* Sieb. & Zucc. (Y, sp. 1; T, sp. 1), *Staphylea* L. (Y, spp. 2), *Tapiscia* Oliv. (Y, sp. 1), *Turpinia* Vent. (Y, spp. 8; T, spp. 3).
- Stemonaceae** (Y, gen. 1; T, gen. 1): *Stemona* Lour. (Y, spp. 2; T, sp. 1).
- Sterculiaceae** (Y, gen. 16; T, gen. 9): *Ambroma* L. f. (Y, sp. 1), *Byttneria* Loebl. (Y, spp. 3), *Commersonia* J. R. Forst. & G. Forst. (Y, sp. 1), *Craigia* W. W. Sm. & W. E. Evans (Y, sp. 1), *Eriolaena* DC. (Y, spp. 5), *Firmiana* Marsili (Y, spp. 3; T, sp. 1), *Helicteres* L. (Y, spp. 8; T, sp. 1), *Heritiera* Aiton (Y, sp. 1; T, sp. 1), *Kleinhovia* L. (T, sp. 1), *Melhania* Forssk. (Y, sp. 1), *Melochia* L. (Y, sp. 1; T, sp. 1), *Paradombeya* Stapf (Y, sp. 1), *Pentapetes* L. (Y, sp. 1), *Pterospermum* Schreb. (Y, spp. 7; T, sp. 1), *Reevesia* Lindl. (Y, spp. 4; T, sp. 1), *Sterculia* L. (Y, spp. 18; T, sp. 1), *Waltheria* L. (Y, sp. 1; T, sp. 1).
- Stylidiaceae** (Y, gen. 1): *Stylidium* Sw. (Y, sp. 1).
- Styracaceae** (Y, gen. 8; T, gen. 2): *Alniphyllum* Matsum. (Y, spp. 2; T, sp. 1), *Bruinsmia* Boerl. & Koord. (Y, sp. 1), *Huodendron* Rehd. (Y, spp. 3), *Meliiodendron* Hand.-Mazz. (Y, sp. 1), *Parastyrax* W. W. Sm. (Y, spp. 2), *Pterostyrax* Siebold & Zucc. (Y, spp. 2), *Rehderodendron* Hu (Y, spp. 7), *Styrax* L. (Y, spp. 18; T, spp. 3).
- Symplocaceae** (Y, gen. 1; T, gen. 1): *Symplocos* Jacq. (Y, spp. 41; T, spp. 26).
- Taccaceae** (Y, gen. 1; T, gen. 1): *Tacca* J. R. Forst. & G. Forst. (Y, spp. 2; T, sp. 1).
- Tamaricaceae** (Y, gen. 2): *Myricaria* Desv. (Y, spp. 3), *Tamarix* L. (Y, sp. 1).
- Taxaceae** (Y, gen. 3; T, gen. 2): *Amentotaxus* Pilg. (Y, sp. 1; T, sp. 1), *Taxus* L. (Y, spp. 2; T, sp. 1), *Torreya* Arn. (Y, spp. 2).
- Taxodiaceae** (Y, gen. 5; T, gen. 2): *Cryptomeria* D. Don (Y, sp. 1), *Cunninghamia* R. Br. (Y, sp. 1; T, sp. 1), *Glyptostrobus* Endl. (Y, sp. 1), *Metasequoia* Hu & W. C. Cheng (Y, sp. 1), *Taiwania* Hayata (Y, sp. 1; T, sp. 1).
- Tetracentraceae** (Y, gen. 1): *Tetracentron* Oliv. (Y, sp. 1).
- Tetramelaceae** (Y, gen. 1): *Tetrameles* R. Br. (Y, sp. 1).
- Theaceae** (Y, gen. 9; T, gen. 9): *Adinandra* Jack (Y, spp. 9; T, spp. 2), *Anneslea* Wall. (Y, sp. 1; T, sp. 1), *Camellia* L. (Y, spp. 39; T, spp. 12), *Cleyera* Thunb. (T, sp. 1), *Eurya* Thunb. (Y, spp. 43; T, sp. 12), *Gordonia* J. Ellis (Y, spp. 4; T, sp. 1), *Pyrenaria* Blume (Y, spp. 6; T, sp. 1), *Schima* Reinw. (Y, spp. 8; T, sp. 1), *Stewartia* L. (Y, spp. 4), *Ternstroemia* Mut. (Y, spp. 6; T, sp. 1).
- Thymelaeaceae** (Y, gen. 7; T, gen. 3): *Aquilaria* Lam. (Y, sp. 1), *Daphne* L. (Y, spp. 18; T, spp. 3), *Edgeworthia* Meisn. (Y, spp. 3), *Erioseola* Blume (Y, sp. 1), *Rhamnoneuron* Gilg (Y, sp. 1), *Stellera* L. (Y, sp. 1; T, sp. 1), *Wikstroemia* Endl. (Y, spp. 14; T, spp. 5).
- Tiliaceae** (Y, gen. 7; T, gen. 4): *Berrya* Roxb. (T, sp. 1), *Burretiodendron* Rehd. (Y, spp. 3), *Colona* Cav. (Y, spp. 2), *Corchorus* L. (Y, spp. 4; T, spp. 3), *Grewia* L. (Y, spp. 15; T, spp. 4), *Microcos* L. (Y, spp. 2), *Tilia* L. (Y, spp. 8), *Triumfetta* L. (Y, spp. 4; T, spp. 4).
- Toricelliaceae** (Y, gen. 1): *Torricellia* DC. (Y, sp. 1).
- Trilliaceae** (Y, gen. 2; T, gen. 2): *Paris* L. (Y, spp. 11; T, sp. 1), *Trillium* L. (Y, sp. 1; T, sp. 1).
- Triuridaceae** (T, gen. 1): *Sciaphila* Blume (T, spp. 2).
- Trochodendraceae** (T, gen. 1): *Trochodendron* Sieb. & Zucc. (T, sp. 1).

- Typhaceae** (Y, gen. 2; T, gen. 2): *Sparganium* L. (Y, spp. 5; T, sp. 1), *Typha* L. (Y, spp. 3; T, spp. 2).
- Ulmaceae** (Y, gen. 6; T, gen. 5): *Aphananthe* Planch. (Y, spp. 2; T, sp. 1), *Celtis* L. (Y, spp. 11; T, spp. 5), *Gironniera* Gaudich. (Y, sp. 1), *Trema* Lour. (Y, spp. 5; T, spp. 3), *Ulmus* L. (Y, spp. 8; T, spp. 2), *Zelkova* Spach (Y, spp. 2; T, sp. 1).
- Umbelliferae** (Y, gen. 50; T, gen. 17): *Acronema* Falc. (Y, spp. 10), *Anethum* L. (Y, sp. 1), *Angelica* L. (Y, spp. 8; T, spp. 4), *Anthriscus* (Pers.) Hoffm. (Y, spp. 2), *Arcuatopterus* Shan & Sheh (Y, spp. 3), *Bupleurum* L. (Y, spp. 12; T, sp. 1), *Carum* L. (Y, sp. 1), *Centella* L. (Y, sp. 1; T, sp. 1), *Chaerophyllopsis* de Boissies (Y, sp. 1), *Chaerophyllum* L. (Y, sp. 1), *Chamaesium* H. Wolff (Y, spp. 6), *Cicuta* L. (Y, sp. 1), *Cnidium* Cuss. (Y, sp. 1; T, sp. 1), *Conioselinum* Hoffm. (T, sp. 1), *Coriandrum* L. (Y, sp. 1), *Cortia* DC. (Y, sp. 1), *Cryptotaenia* DC. (Y, sp. 1; T, sp. 1), *Cyclorhiza* M. L. Sheh & R. H. Shan (Y, spp. 2), *Daucus* L. (Y, sp. 1), *Dickinsia* Franch. (Y, sp. 1), *Eryngium* L. (Y, sp. 1; T, sp. 1), *Ferula* L. (Y, spp. 2), *Foeniculum* Mill. (Y, sp. 1), *Glehnia* F. Schmidt (T, sp. 1), *Haplosphaera* Hand.-Mazz. (Y, sp. 1), *Harrysmithia* H. Wolff (Y, sp. 1), *Heracleum* L. (Y, spp. 19), *Hydrocotyle* L. (Y, spp. 7; T, spp. 7), *Ligusticum* L. (Y, spp. 27), *Meeboldia* H. Wolff (Y, sp. 1), *Melanosciadium* H. Boissieu (Y, sp. 1), *Nothosmyrnium* Miq. (Y, sp. 1), *Notopterygium* H. Boissieu (Y, spp. 2), *Oenanthe* L. (Y, spp. 8; T, spp. 2), *Oreomyrrhis* Endl. (T, spp. 3), *Osmorhiza* Raf. (Y, sp. 1; T, sp. 1), *Ostercicum* Hoffm. (Y, sp. 1), *Peucedanum* L. (Y, spp. 8; T, spp. 2), *Physospermopsis* H. Wolff (Y, spp. 6), *Pimpinella* L. (Y, spp. 28; T, spp. 2), *Pleurospermum* Hoffm. (Y, spp. 19), *Pternopetalum* Franch. (Y, spp. 17), *Sanicula* L. (Y, spp. 7; T, spp. 2), *Selinum* L. (Y, spp. 2), *Seseli* L. (Y, spp. 3), *Sinocarum* H. Wolff (Y, spp. 7), *Sinolimprichtia* H. Wolff (Y, sp. 1), *Sium* L. (T, sp. 1), *Tetrataenium* (DC.) Manden. (Y, spp. 2), *Tongoloa* H. Wolff (Y, spp. 7), *Torilis* Adans. (Y, spp. 2; T, spp. 2), *Trachydium* Lindl. (Y, spp. 7), *Trachyspermum* Link (Y, spp. 2), *Vicatia* DC. (Y, spp. 3).
- Urticaceae** (Y, gen. 19; T, gen. 21): *Boehmeria* Jacq. (Y, spp. 17; T, spp. 8), *Chamabainia* Wight (Y, sp. 1; T, sp. 1), *Cypholophus* Wedd. (T, sp. 1), *Debregeasia* Gaudich. (Y, spp. 5; T, sp. 1), *Dendrocnide* Miq. (T, spp. 2), *Droguetia* Gaudich. (Y, sp. 1), *Elatostema* J. R. Forst. & G. Forst. (Y, spp. 71; T, spp. 14), *Girardinia* Gaudich. (Y, spp. 2; T, sp. 1), *Gonostegia* Turcz. (T, spp. 3), *Laportea* Gaudich. (Y, spp. 5; T, spp. 2), *Lecanthus* Wedd. (Y, spp. 3; T, sp. 1), *Leucosyke* Zoll. & Moritsi (T, sp. 1), *Maoutia* Wedd. (Y, sp. 1; T, sp. 1), *Memoralis* (Benn.) Buch.-Ham. (Y, sp. 1), *Nanocnide* Blume (Y, sp. 1; T, sp. 1), *Oreocnide* Miq. (Y, spp. 7; T, spp. 2), *Pellionia* Gaudich. (Y, spp. 14; T, spp. 2), *Pilea* Lindl. (Y, spp. 43; T, spp. 13), *Pipturus* Wedd. (T, sp. 1), *Poikilospermum* Zipp. (Y, spp. 2; T, sp. 1), *Pouzolzia* Gaudich. (Y, spp. 6; T, spp. 2), *Procris* Comm. (Y, sp. 1; T, sp. 1), *Sarcochlamys* Gaudich. (Y, sp. 1), *Urtica* L. (Y, spp. 8; T, spp. 2).
- Verbenaceae** (Y, gen. 5; T, gen. 2): *Duranta* L. (Y, sp. 1), *Lantana* L. (Y, sp. 1; T, sp. 1), *Phyla* Lour. (Y, sp. 1; T, sp. 1), *Stachytarpheta* Vahl (Y, sp. 1), *Tsoongia* Merr. (Y, sp. 1).
- Violaceae** (Y, gen. 1; T, gen. 2): *Hybanthus* Jacq. (T, sp. 1), *Viola* L. (Y, spp. 58; T, spp. 13).
- Vitaceae** (Y, gen. 9; T, gen. 7): *Ampelocissus* Planch. (Y, spp. 3), *Ampelopsis* Michx. (Y, spp. 10; T, sp. 1), *Cayratia* Juss. (Y, spp. 12; T, spp. 2), *Cissus* L. (Y, spp. 14; T, spp. 5), *Leea* D. Royen (Y, spp. 7; T, spp. 2), *Parthenocissus* Planch. (Y, spp. 4; T, sp. 1), *Tetrastigma* (Miq.) Planch. (Y, spp. 32; T, spp. 4), *Vitis* L. (Y, spp. 12; T, spp. 4), *Yua* C. L. Li (Y, spp. 2).
- Xyridaceae** (Y, gen. 1; T, gen. 1): *Xyris* L. (Y, sp. 1; T, sp. 1).
- Zannichelliaceae** (Y, gen. 1; T, gen. 2): *Halodule* Endl. (T, spp. 2), *Zannichellia* L. (Y, sp. 1; T, sp. 1).
- Zingiberaceae** (Y, gen. 18; T, gen. 5): *Alpinia* Roxb. (Y, spp. 25; T, spp. 12), *Amomum* Roxb. (Y, spp. 26), *Boesenbergia* Kuntze (Y, spp. 3), *Caulokaempferia* Larsen (Y, sp. 1), *Cautleya* Hook. f. (Y, spp. 2), *Costus* L. (Y, spp. 5; T, sp. 1), *Curcuma* L. (Y, spp. 11), *Etlingera* Giseke (Y, spp. 2), *Globba* L. (Y, spp. 3), *Hedychium* J. Koenig (Y, spp. 16; T, sp. 1), *Kaempferia* L. (Y, spp. 3), *Paramomum* S. Q. Tong (Y, sp. 1), *Pommereschea* Wittm. (Y, spp. 2), *Rhynchanthus* Hook. f. (Y, sp. 1), *Roscoea* Sm. (Y, spp. 10), *Siliquamomum* Baill. (Y, sp. 1), *Stahlianthus* Kuntze (Y, spp. 2), *Vanoverberghia* Merr. (T, sp. 1), *Zingiber* Mill. (Y, spp. 25; T, spp. 4).
- Zosteraceae** (T, gen. 1): *Zostera* L. (T, sp. 1).
- Zygophyllaceae** (Y, gen. 1; T, gen. 1): *Tribulus* L. (Y, spp. 2; T, spp. 2).